THE LANCET.

LECTURES

ON THE

ANATOMY, PHYSIOLOGY, AND DISEASES OF THE EYE.

By MR. LAWRENCE.

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Lecture IX.

Wounds of the Eye and its Appendages.

Gentlemen,

Wounds of the eyebrow, and neighbouring frontal region, are sometimes attended with more serious consequences than mere alterations in form, and the consequent effect on personal appearance. A violent blow in this situation, with or without wound, may affect the globe, as well as the external soft parts; may seriously injure it by concussion, without externally wounding it, and thus sight may be impaired or entirely destroyed. I shall speak subsequently of concussion of the retina. The bone may be fractured, and the anterior cerebral lobe injured; or the fracture may extend along the thin, brittle, orbital process of the frontal bone, reaching to the optic nerve, or to the union of the two nerves. In such cases injury to sight, in various degrees, will probably accompany the external wound, but the state of vision is here a subordinate point; our attention is called to the danger of life, and the means we resort to for averting it will probably be equally advantageous to the eye. It is obviously necessary, in all such accidents, for the surgeon to examine the globe carefully, and to ascertain, as soon as the circumstances will allow, whether vision is injured or lost.

Other cases have been mentioned, where the direct injury has been confined to the soft parts of the brow, without any fracture, or any concussion of the globe, and yet amaurotic weakness of sight, or actual blindness, has supervened sooner or later. Hippocrates has made the remark, that wounds of the eyebrows often cause blindness; several learned men have commented on this remark, but I know of none who have attempted to illustrate the point by facts. Beer, however, states that he has had frequent opportunities of accurately observing and curing amblyopia (weakness of sight) and amaurosis (loss of sight) occurring in consequence of wounds of the eyebrows: Mr. Wardrop, too, speaks as if he had seen such cases. The instances referred to are incised or lacerated wounds, embracing the trunk or principal branches of the frontal nerve, and Beer regards the injury of this nerve as the determining cause of the amaurotic affection. However, he applies this explanation to what he represents as the most frequent case, viz. that of the visual affection coming on during the cicatrisation, or after its completion. He says, that where such wounds are judiciously managed and speedily healed by adhesion, no bad consequence ensues; but that when suppuration occurs, followed by the granulating process necessary for secondary union, the divided nerves are involved in the inflammation, and subsequently included in the hard cicatrix, and, as he conceives, compressed and irritated. He observes, that among the numerous cases which he has seen of such wounds, only two instances have occurred of complete amaurotic blindness, in both of which it did not appear till some length of time after the healing of the wound. His treatment, founded on this view of the cause, consists in dividing the nerves included in the cicatrix. He states, that in the two cases just mentioned, the patients were completely restored to sight by cutting down to the bone, close to the superciliary foramen, so as to divide all the branches of the frontal nerve.

I have never seen any cases of the kind described by Beer, that is, of amblyopia or amaurosis, caused by or accompanying wounds of the eyebrow, when the globe had received no injury. I have seen no example of amaurotic affection

in which there has been any ground for ascribing the occurrence to such a wound; and further, considering the frequency of amaurosis, I think if it should not occur until long after the wound, as Beer expressly mentions in his two cases, we should require strong evidence to connect the affection of sight and the wound as effect and cause.

If sight may be thus injured or lost by wounds of the frontal nerve, we should infer that similar consequences would arise from injuries of the infra-orbital nerve. Beer says that this is the case, but he does not cite any facts. The latter nerve, however, is so much more effectually protected than the former, that wounds of it are comparatively rare.

The lachrymal canals and sac are so small, so protected by their situation in the corner of the eye, and by the surrounding bone, that they seldom suffer from external violence; if they should be injured, we can do nothing more than to keep the parts at rest, and employ the local and general treatment most likely to avert inflammation. I have seen one of the lachrymal canals, and its corresponding punctum, obliterated by accidental injury without any observable defect in the absorption of the tears. Even where this has happened to the lower canal, and the nasal half of the eyelid has been at the same time drawn down and partially everted, the person has suffered no inconvenience from watering of the eye.

I have seen three or four instances of the lachrymal sac being burst by a blow, with escape of air into the cellular texture of the lids; the emphysematous swelling, which has been considerable, but not extending beyond the palpebræ, has disappeared spontaneously in a few days.

When wounds occur within the margin of the orbit, their depth is of more consequence than their extent; indeed, the smaller are the more dangerous, as a small pointed instrument is more likely than a larger one to penetrate into the cavity. Here the external wound affords no criterion of the internal injury and danger. A slender and sharp instrument may easily penetrate the bony roof of the orbit, which is as thin as paper at some points, and thus wound the brain. Some of the muscles or nerves, contained in the cavity, may be divided or injured, the position of the globe being consequently changed, and its motions more or less affected.

Lastly, the entrance of a foreign body into the orbit often displaces the globe, pushing it out between the palpebræ, where it remains in the state technically termed exophthalmia. The globe itself escapes injury from its spherical figure; it can hardly be wounded, except on its anterior surface.

All penetrating wounds of the orbit are to be regarded as serious cases, when we do not know how far the injury has extended, and should be treated accordingly until the period of danger is passed. The patient should be kept quiet and should not employ the eye; the bowels ought to be emptied and a light diet enjoined, the symptoms being carefully watched, so that the earliest indications of danger may be noticed and properly treated.

If the globe should have been thrust out between the lids, the nerve is rendered insensible. We should ascertain whether any foreign substance remains in the orbit, and remove it if there be any such. The globe is then to be gently replaced; it returns easily and remains in its situation. If the latter should not be the case, it must be retained by a soft, folded, linen rag, dipped in water and confined by a light bandage. Rest of the eyes, and of the body generally, and antiphlogistic treatment with spare diet, will be proper. Vision is soon restored in these cases, if the globe should have been merely thrust between the lids; such a displacement involves no considerable stretching of the nerve. Beer mentions the case of a young man, who had received a blow on the external angle of the eye by a tobacco-pipe, violently thrust in his face by a fellow student.—When Beer came, there was complete exophthalmia, and the cornea was turned towards the nose. He found, and extracted from the orbit, a piece of the pipe, nearly an inch long, when the globe returned of itself into the cavity, the cornea still remaining turned inwards, and the patient having a very feeble perception of light. In five weeks vision was perfectly restored, but the eye still turned in, and could scarcely be moved in the opposite direction.

Cases of exophthalmia from accident are recorded, in which replacement of the globe has not been effected for some days, or even weeks, but has been ultimately accomplished, with restoration of vision when there has been simple protrusion, without any other injury.

If the muscles and nerves should be extensively wounded, the globe will be very loose, and entirely insensible to light, and will fall out of the orbit again after being replaced. It should be restored, and gently confined in its situation.

Wounds of the Globe.

Its delicate organization, vascular and nervous structure, and great sensibility render it very liable to inflammation; consequently wounds inflicted on it are dangerous. Surgical operations, which are executed with the sharpest and smoothest instruments, and performed with the greatest care and gentleness on persons carefully prepared by previous attentions to diet and medicine, often excite serious inflammation; we cannot therefore be surprised at the violent and destructive disturbance caused by wounds made with rough, ragged, or blunt bodies, inflicted with violence, and on subjects in a state of body favourable to inflammation.

The extent of the wound, the degree of violence, and the state of the constitution, are the circumstances of chief importance in determining the degree of inflammatory re-action. Small wounds gently inflicted are not dangerous; such as the puncture of the cornea, and of the tunics in depression. Larger wounds, when gently inflicted, often cause no inflammation, as the section of the cornea in extraction. The very smallest, when violent, are attended with great danger, from laceration of the delicately organised parts, and concussion of the nervous structure. I saw complete amaurosis caused by a single small shot, which struck the sclerotic obliquely and did not enter. The state of health at the time of the occurrence is, however, in most cases, a matter of more consequence than the extent or manner of the injury: in an individual of full habit, or one whose circulation is habitually excited by indulgence in the enjoyments of the table, or whose health is disturbed by disorder of the digestive functions, the smallest injury will excite considerable inflammation; while under opposite circumstances we are sometimes surprised to see how much violence is inflicted with impunity on this delicate organization.

In consequence of the serious inflammation they so often excite, inflammation affecting the interior of the organ, penetrating wounds of the globe, that is such as pass through the cornea or sclerotica, must always be deemed important cases. The patient must remain quiet, and the wounded organ be kept perfectly at rest; the alimentary canal must be effectually cleared, and low diet strictly enjoined. If the individual be young and robust, or of full habit, or if from any other circumstances considerable inflammation may be expected, a full bleeding from the arm should immediately take place; supposing the propriety of this treatment to be doubtful, it will be safer to bleed than to omit it. In a child leeches should be applied to the eyelids, from four to ten or twelve. If blood should not be abstracted immediately after the accident, the patient must be closely watched, and bleeding, cupping on the temple, or leeches be resorted to, as soon as pain comes on in the part. The cupping or leeches must be repeated until all uneasy sensation shall have subsided.

You will understand of course that extraneous substances are to be removed, if there should be any such in the wound. This rule, however, is not absolute. The point of a cataract knife was broken off in the operation, and remained in the anterior chamber, from which it soon disappeared without any injurious consequence to the organ. I have seen this take place, and think it better to leave a minute particle of steel in the anterior chamber, than to persevere in attempts at removing it, if it should not come out easily.

Wounds of the cornea produced by particles of metal, or other minute substances, cause very different degrees of inflammation in different individuals. In some cases there is neither local disturbance nor uneasiness, or at least nothing more than mechanical irritation on motion; while in others, where the person is of full habit, or continues laborious exertion, especially under exposure to heat, and combined with free drinking, severe inflammation of the cornea, sclerotica, and anterior chamber generally, with hypopium may be the result. When such inflammation begins, a pink zone is first seen in the sclerotic, round the cornea; this redness becomes deeper and more extensive; the cornea loses its transparency, often becoming quite dull and turbid; it ulcerates round the foreign particle, which is loosened and drops out. This state will require vigorous antiphlogistic measures, and unless they are of decided character, and actively pursued, suppuration of the cornea, and extension of inflammation to the chambers of the aqueous humour will result. When the cornea is penetrated the aqueous humour escapes, the cornea and iris coming into contact; but the aqueous humour is soon reproduced, and the corneal wound unites by adhesion. When the wound is large, prolapsus of the iris often follows; the portion which thus escapes cannot be replaced, we can therefore only treat the case on the general principles already explained. I shall more particularly consider prolapsus iridis afterwards.

Wounds of the sclerotica are not of consequence in themselves, but they be-

come important from the force which must have been required to effect them, and from the almost inevitable participation of the immediately adjoining internal tunics. A violent blow sometimes bursts the sclerotic coat, without dividing the conjunctiva; the hard external covering of the eye is cracked by the injury, and you see the fissure of the sclerotic through the conjunctiva. Concussion of the retina, internal extravasation of blood, and amaurosis are the almost invariable concomitants of such an injury. Wounds of the sclerotic do not unite; the fissure in the case just described, is permanent, and the punctured opening made in depression of the cataract is equally so.

A wound of the iris is generally an important case; it is a penetrating wound, and usually inflicted with violence. A simple division of this part, is however, in itself unimportant. Although the iris, when examined microscopically after a successful minute injection, seems to be entirely composed of a vascular net-work, it does not bleed on being cut, nor does a simple division of it lead to any injurious consequences. On the other hand, it is greatly irritated by pressure. In the natural state it is unconfined, freely moving in the aqueous humour; in the condition of prolapsus, the hard edge of the cornea embraces and presses on the neck of the prolapsed portion, while the external tumour is constantly undergoing friction from the eyelids; thus irritation is produced, which often extends to the whole globe, greatly aggravating the sufferings of the patient.

Accidental violence may cause detachment of the iris at its ciliary margin, thus producing an artificial pupil, and usually attended with closure of the natural pupil. This kind of accident is accompanied with effusion of blood into the anterior chamber.

If a penetrating wound of the globe takes place behind the cornea, the ciliary body or choroid coat will probably suffer; wounds of those parts will be attended with extravasation of blood into the chambers of the eye, both anterior and posterior. It has been recommended to open the anterior chamber in order to let out the coagulated blood, and prevent further effusion. This is totally unnecessary, since absorption is very active in this chamber, and the blood will be removed in a few days. Such a wound in the cornea is not only altogether unnecessary, but must be injurious, by adding to the local injury, already considerable, and by increasing the chances of inflammation by the exposure of the chambers. The blood does not mix with, or render turbid the aqueous humour, but it sinks to the bottom of the anterior chamber and there remains, and in two instances I found that it retained its fluidity, so that the level was altered on inclining the head to one side; but whether this is always the case I do not know. This effusion of blood into the anterior chamber is not in itself a matter of consequence; but it shows that injury has been done to the ciliary body or choroid. You will sometimes see effusion of blood behind the iris; this must always be regarded as a very unfavourable appearance, indicating that the injury extends to the central and most important parts of the eye.

When the ciliary body, or choroid coat is wounded, the pupil exhibits a remarkable change, which must be referred to the partial injury of the ciliary nerves necessarily attendant on such an accident. As these nerves, which supply the iris, run between the sclerotic coat and choroid, they must suffer when those tunics are injured. Thus the iris is partially paralysed, the portion supplied by the injured nerves being contracted to the utmost, and sometimes even disappearing, and the pupil exhibiting a corresponding partial dilatation.

The *lens and its capsule* are frequently wounded, when the cornea and iris are punctured by sharp instruments. We find invariably that the lens becomes opaque when it or its capsule is wounded, and the slightest mechanical injury is sufficient to produce that effect, such as a puncture of the part with the finest needle. By introducing such a needle through the centre of the cornea and the pupil, cataract might be artificially produced without any other injury to the organ, without inflammation, and possibly without any appearances from which the manœuvre could be discovered. It has been said, that soldiers have had recourse to this proceeding in order to obtain their discharge from the army. We cannot explain how or why wounds of the lens and capsule should thus invariably produce cataract. We can trace no vessels into the lens from its capsule; its ordinary nutrition is a problem to us, and we are equally in the dark respecting its changes from accident or disease. The alteration in question is independent of inflammation; for it will occur before inflammation comes on, or even when it does not take place at all.

Traumatic cataract, as it is technically called, takes place under various circumstances; 1st. Simple puncture of the lens through the cornea and pupil; 2d. Laceration of the capsule, with protrusion through the opening of the ex-

terior soft substance of the lens, in the form of a bluish white jelly; a portion of this jelly may drop off into the anterior chamber, and be succeeded by a fresh protrusion. 3d. Puncture or laceration of the capsule, with dislocation of the lens, which may press against the iris, or be wedged into the pupil, or push the iris into close contact with the cornea. 4th. Passage of the entire lens through the opening of the capsule and the pupil; it may pass in the same way into the anterior chamber, still surrounded by its capsule. 5th. You may have a combination of either of the above circumstances, with wound of the cornea, or of the ciliary body, or with wound or prolapsus of the iris. When the lens is dislocated, and presses against the iris, great irritation and severe inflammation ensue. 6th. You may have the lens becoming opaque, in consequence of a blow or concussion of the eye, without any solution of continuity. I have seen many such instances.

When the lens has been rendered opaque by wounds, under any of these circumstances, it begins to be absorbed, and this process of absorption will go on in many cases to the complete removal of the opaque body, leaving the pupil entirely clear, so that the wound is both the cause and the remedy of the cataract. That portion of lens that may be squeezed through the opening in the capsule into the anterior chamber undergoes absorption very readily, while that which remains within the capsule is absorbed much more slowly. When the lens has been thus removed, a membranous cataract is generally left. In almost all cases of penetrating wounds, considerable inflammation supervenes, in which the capsule participates, being rendered opaque and sometimes thickened, so that when the lens is quite absorbed, a membranous or capsular cataract is seen occupying more or less of the pupil, and sometimes completely filling the opening.

The treatment of these cases, immediately after the accident, must be managed according to the general rules applicable to penetrating wounds of the globe; we must institute the antiphlogistic plan without delay, and follow it up actively, either until inflammation shall be removed, or the period for its occurrence shall have gone by. It will be right to dilate the pupil by the use of belladonna, and thus expose the lens more freely to the action of the aqueous humour, in order to facilitate its absorption. When the eye has acquired its natural state, excepting the presence of the opaque body in the pupil, the treatment falls under the rules applicable to cataract, which will be considered hereafter. The opaque capsule does not undergo absorption like the lens; it will remain in the pupil unchanged for any number of years. I doubt whether it is ever absorbed. Beer mentions a case in which the lens had been in the anterior chamber, surrounded by its capsule, for twenty-six years unreduced in size. It had been displaced by a violent blow upon the eye. A patient occasionally visits this Infirmary, with the lens surrounded by its capsule in the anterior chamber, where it has been twenty-eight years.

It must be a serious injury to reach the vitreous humour, and occasion any loss of it; we may expect as the result, not only blindness, but change of figure in the globe.

A simple puncture of the *retina* is not attended with any danger, in fact the retina must be frequently punctured in the operation of depression, yet such punctures do not impair its powers; a larger division will cause amaurosis. The kind of violence most injurious to the retina, is that concussion which it suffers from a blow on the eye, and the danger is in a direct ratio to the degree of force. The degree of injury to the retina, as evinced by the diminution, or loss of sight, is not commensurate with the visible mechanical injury inflicted on the organ. The nervous structure of the eye suffers in these cases, as the brain does in many injuries of the head; and the term *concussion* would be equally applicable to both. The employment of this word does not exclude the notion of actual laceration, or vascular rupture in either case; we merely employ it to denote the accidents in which, although the symptoms show the brain or retina to be affected, there is no external wound. When the sclerotic is ruptured, there is either actual laceration, or concussion of the retina; but the latter kind of injury sometimes occurs from accidents of a more trivial character, in which the degree of violence appears too inconsiderable for the effect. This injurious influence on the retina is only produced by blows on the naked globe; the interposition of the eyelids is sufficient to protect the eye even from great violence, as the pugilistic contests teach us. The diminution, or loss of sight, is immediately consequent on the accident, and usually accompanied with a fixed state of the pupil, perhaps with some enlargement or change of figure in the opening, and with excessive partial dilatation, where the ciliary nerves are divided or contused. There may be effusion of blood into the anterior chamber, or behind the pupil. When you first see such

a case, inquire minutely into the circumstances of the accident; ascertain the nature, degree, and exact situation of the injury; observe the condition of the iris and the pupil, and satisfy yourselves clearly respecting the state of vision. You will be thus prepared to speak decidedly, not only on the present state of vision, but on the important question of its ultimate loss or recovery. If there be mere concussion of the retina, and that partial, and no other injury of the globe, and if sight be only partially injured, recovery may be expected under prudent management; that is, if the body in general, and the organ, be kept in repose, and the access of inflammation be prevented. Total amaurosis immediately following the injury, is a most unfavourable symptom under any circumstances; the addition of considerable change in the pupil, extravasation of blood, and indications of actual laceration of the retina, make the case absolutely hopeless. Under the latter unfavourable circumstances, there is, at the time of the accident, no great pain in the part, nor increased redness, but in a few days the eye becomes painful, and grows red; the pain increases, inflammation commences in the internal tunics, and spreads to the exterior, the sclerotic and conjunctiva becoming red, with pain in the head, intolerance of light, increased lachrymal discharge. The necessity of the antiphlogistic treatment is obvious. As the violent symptoms subside, the eye goes into a state of atrophy, the globe becomes soft, diminishes in size, and shrinks into the orbit.

This concussion of the retina, and consequent blindness, sometimes take place from accidents, that you would hardly deem adequate to produce such an effect. I was consulted in the case of a young gentleman in the country, who had merely struck the eye with a pocket knife, when cutting a piece of whipcord; the blade of the knife, which was quite blunt, struck the lower part of the cornea. The lad was treated very judiciously; the practitioner on the spot applied leeches, and did all that could be done in such a case, but when he opened the eye, after a certain time, his friends were alarmed to find that he could not see, and he was consequently brought to town. The pupil was dilated and fixed, but not discoloured. The wound seemed to have penetrated the cornea and reached the iris, which adhered to the cicatrix, but it had not extended to the lens: the eye, however, was quite insensible to light. I considered the eye to be lost, and indeed it did not appear to me that any thing could be done. As the parents of the child were very anxious about him, a consultation was held on this case, which terminated in the same opinion. After three or four months, he was brought again to town, when the process of absorption had not only begun, but considerably advanced, so that the bulk of the globe was already considerably reduced.

Not long ago, I had occasion to see another lad from the country, who had received a blow upon the eye with a small stick from one of his companions. It appeared that the eye had been struck on its inner side, but although the injury had produced at the time no visible mark, or external redness, amaurosis followed, and was permanent. After the lapse of a few weeks, the sight of the other eye became impaired sympathetically, and I was afraid that it would be entirely lost; the retina, however, recovered. The influence of one eye upon the other is not confined to cases of disease. When an eye has been lost by accident, the other often becomes diseased sooner or later, without any imprudence, or any external influence that would be injurious under ordinary circumstances. This kind of occurrence is so common, that it is necessary to warn those who have lost an eye of their danger, and to point out the necessary precautions for avoiding it.

Our only chance for restoring sight, when the retina has been injured by concussion, is in keeping the organ quiet, in taking blood from the neighbourhood by cupping or leeches, and in the general treatment called antiphlogistic. After evacuations, blistering may be resorted to advantageously. A boy about six years old was lately brought to the Infirmary, having hurt his eye from the explosion of gunpowder. There was a small extravasation of blood into the anterior chamber, some enlargement of the pupil, which was motionless, and apparently displaced towards the upper part of the eye, and loss of vision. The prognosis was unfavourable; but sight was perfectly restored, the change of figure in the pupil remaining.

LECTURES

ON THE

THEORY AND PRACTICE OF PHYSIC,

By DR. CLUTTERBUCK.

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LECTURE IX.

Gentlemen,

WHENEVER a number of objects are to be considered, there is always an advantage in arranging them according to some method, which, of course, ought to be founded on a similarity of properties existing between them; the advantage of this is, that a number of objects may be considered together, and thus the study of them greatly abridged; the necessity of arrangement is in proportion to the number of objects requiring to be considered. Now diseases are sufficiently numerous to call for this, and, accordingly, they have been classed in various ways, and upon different principles.

The classification of diseases is commonly termed *Nosology*, but more properly, *Methodical Nosology*, a branch of study to which considerable importance was attached by the justly celebrated Cullen, who has furnished us with, upon the whole, the best system on this subject, though one that is far from unobjectionable.

A variety of methods have been employed in the classification of diseases, but most of them are liable to objection. Formerly, diseases were classed according to the position they occupied in the body, upon a plan that might be termed *topographical*, without any regard to either their nature, causes, or treatment. This is a sufficiently simple and natural arrangement, and is the one that was adopted by Bonetus, Morgagni, and Lieutaud, all of whom described diseases in this order, proceeding from above downwards, as those of the head, chest, abdomen, and so on; such a method, however, has nothing but anatomical convenience to recommend it, as it brings together diseases of very different natures, while it separates those that have the strongest practical points of agreement; besides which, there are many diseases of which it is not possible to assign the seat.

Diseases have been classed also according to their *causes*, as in the case of *endemic*, *epidemic*, and *contagious* diseases; this, however, goes but a little way, the causes of a great number of diseases being very imperfectly known or understood. The *degree* and *duration* of diseases have likewise been made a ground of arrangement in regard to the terms *acute* and *chronic*, and we have lately heard of the term *subacute*; but a mere difference in degree constitutes nothing that is essentially different, and is, therefore, no proper ground for arrangement.

An attempt has been made to class diseases according to their supposed nature or *proximate cause*. Upon this principle was founded a division of diseases into *sthenic* and *asthenic*, or those of excitement and of debility, according to the system of Dr. Brown, which was very popular a few years ago, but which is now deservedly abandoned. This method, indeed, of classing diseases according to their intrinsic nature, would be the best, if it were practicable; for it would, at the same time, suggest the treatment proper to be pursued; but, unfortunately, we know too little of the intimate nature of diseases to allow of our proceeding in this way.

Diseases have even been arranged according to their treatment. Thus tables of diseases have been constructed, with the remedies for each in an appropriate column, as you may see on referring to many old authors. This would do very well, if diseases of similar denomination always required the same treatment, which I need not observe to you is far from being the case, and therefore we have no occasion to dwell longer upon this.

By far the most popular classification of diseases at present, is that adopted by Dr. Cullen, in his work entitled, "Nosologia Methodica;" a work evincing great genius as well as deep research, and which, although objectionable in its principle, as I shall endeavour to show you, is, nevertheless, highly deserving of your attention, from the great mass of historical information it contains. Dr. Cullen's arrangement is founded principally upon the external characters, or obvious appearances, of diseases, a method borrowed chiefly from the writers on natural history, and which was adopted by Linnæus, Sauvages, and others, but which Dr. Cullen greatly extended and improved. An objection to this plan is, that the symptoms of diseases are often so numerous, as well as various, as to make it difficult to bring them within the compass of a definition, or to distinguish easily between such as are essential and those which are accidental merely; and what are only signs or symptoms are often considered as actual diseases, which, in this

versely, it is found to consist of two cavities, (or *ventricles*, as they are termed,) the sides of which are fleshy and fibrous, but of unequal thickness, the thickness being greater on the left side, while the right cavity is the larger of the two. These two cavities are quite distinct, having no direct communication with each other; so that, in fact, they may be considered as *two* hearts, placed side by side, but at the same time closely connected by an intermixture of their fleshy fibres, acting in unison, yet still separate as to their office, the one (the left) sending the blood throughout the general system; the other (the right) to the lungs merely.

Each side of the heart, or each of the two hearts, as we may express it, has two openings; one, by which it receives the blood from the veins; the other, by which it discharges the blood into the arteries, for distribution over the whole body. At these openings, *valves* or floodgates are placed, by which the course of the blood is determined, as follows. At the opening where the veins enter, the valves open inwards to the heart; consequently they prevent the return of blood into the veins. It can only pass out into the arteries, from whence it is prevented returning back again into the heart, by the valves that open outward, from the heart into the arteries.

From the heart, the blood next passes along the arteries, which divide, and subdivide, into smaller branches, till they are no longer visible; which is the case, indeed, long before they arrive at their terminations. These minuter branches are termed *capillaries*. The course of the blood through the arteries, therefore, is from the heart outwards.

We next find the blood in the veins, and moving in a slow current, in the direction opposite to that in the arteries, namely, towards the heart. This is proved, not only by the effect of ligatures, and puncturing of the veins, but also by the occurrence of valves in many parts of them; which allow of the blood moving in the direction stated, but prevent a retrograde course of it.

The veins, therefore, must receive their blood from the arteries, though the communication of the one with the other is not seen, owing to the extreme minuteness of the smallest series of vessels, which, on this account, are termed *capillaries*, as before observed.

The veins empty their blood into the cavities of the heart before mentioned, called *ventricles*; but not immediately. There is, as it were, an outer chamber to each of the ventricles, into which the veins discharge their blood; these are called *auricles*, and are muscular, though thin; from whence the blood is passed, at intervals only, into the ventricles, to be again thrown out into the arteries.

Thus it is evident, from the construction mentioned, that the blood moves, as it were, in a circle; proceeding from the heart, by the arteries, to every part of the body; and being brought back again to the heart, by the veins.

This, however, is to be observed, that the blood does not come back again to the same side of the heart, from which it set out. That issuing from the *left* side of the heart, comes back to the *right*; and that from the *right* side back to the left. This takes place in the following manner. The blood from the left side or ventricle of the heart, is discharged into the great artery (*aorta*) connected with it; and by the ramifications of this, is distributed throughout the body; whence it is returned, by the veins, back to the right side, (first into the auricle, and thence into the ventricle) of the heart. From this it is sent into the pulmonary artery, and distributed to the lungs by this artery, and returned, by the corresponding veins, into the left side (first into the auricle and thence into the ventricle) of the heart.

Of the powers moving the Blood.

The blood has no power of motion in itself, as far as we can judge; but is put into motion by the parts which contain it, namely, the heart and blood-vessels. These parts are fitted to this office by their structure, which is muscular or contractile. The muscularity is very remarkable in the heart, which consists almost entirely of muscular fibres. The muscular action in this part, may be both distinctly seen, and strongly felt. The fibres contract upon the blood, contained in its principal cavity; the consequence of which is, that the pressure forces it into the great artery, (*aorta*,) from which it is distributed to every part of the body. The contraction of the heart is momentary; it makes its beat, forces the blood into the artery, and then the contraction ceases. The heart is then in a fit state to receive a fresh quantity of blood, which it does from the smaller cavity (called *auricle*.) When it has thus received a fresh supply, distension is the consequence, and this distension is one cause of the renewed contraction of the heart. It again contracts, and forces this second quantity of blood into the artery; and so, by a succession of beats, a succession of contractions of the left ventricle, there is a continued supply of blood sent to the different parts of the system.

The arteries, especially the larger ones,

have an elastic coat of considerable thickness, which enables them to resist distension to a certain degree; but which yet does not bring their sides together, so as to obliterate their cavity; but, on the contrary, tends rather to keep them open, and distended to a certain extent. Hence after death, the arteries are found in a cylindrical form, and empty of blood.

Besides this elastic coat, which indeed makes up the principal part of the substance of the vessel, there is distinctly observable on the interior side of this elastic coat a layer of fibrous structure, which, there can be no reasonable doubt, is muscular. And upon this, the active power of the arteries depends.

The power by which the blood is moved onward in the vessels, has, however, been the subject of much dispute. Some physiologists consider, that the heart is the principal moving power of the blood. Others think, that it is impossible to admit this. It, is doubtless, very difficult to conceive, that the power of the heart should be equal to move the blood throughout the whole series of vessels; which it must do, upon this presumption. The obstacles which it would have to overcome are so great, and so numerous, that it is next to impossible to suppose, that the heart could be equal to such a purpose.

Some suppose, therefore, (and I think with more reason,) that the blood vessels have a share in the movement of the blood, and indeed that they have the greatest share in the performance of this function; the heart doing little more than supplying the arteries with blood; whilst the action of the arteries themselves, forces it onwards, from the larger to the smaller branches, and from these again into the veins; the minutest branch being possessed of contractile powers, by which the whole is kept in motion.

The muscularity of arteries has been denied, upon the ground, that, if their coats be examined, there is no distinct muscular or fibrous structure to be seen. One may, however, admit a muscular power in arteries, without supposing the fibres to be as large and conspicuous as those of the voluntary muscles. Parts that are exceedingly minute, cannot be well observed, as to their structure; and, therefore, the argument, that arteries are not muscular, because no muscular fibres are visible, is untenable. The muscularity of the uterus has been contested on the same grounds. But the powerful action of this organ, is a sufficient proof of its muscularity, without any reference to its visible structure. And the same may be observed with respect to arteries.

Admitting, then, for the present, that the heart and arteries conjointly, by the muscular power they possess, are the agents by which the circulation of the blood is effected, or by which, at least, the blood is forced from the arteries into the veins, in order to be returned to the heart—it is of importance to ascertain, what the relative share of each is, in the performance of this office; how much, in short, is due to the heart, and how much to the arteries. This point cannot, indeed, be accurately determined; but there are many circumstances which throw light upon the subject.

And first, the resistance the heart would have to overcome, supposing it to be the sole or chief cause of the blood's motion. This resistance arises from

1. The elasticity of the arteries, which must be overcome;
2. The viscidity of the blood itself;
3. The attraction that must exist between it and the sides of the vessels;
4. The pressure of neighbouring parts;
5. The extreme minuteness of the capillaries, both arteries and veins, and their frequent anastomoses;
6. The effect of gravity on the ascending column of the blood.

All these causes together, occasion a degree of resistance, which it would require a vast force to overcome. Now the force with which the heart contracts, has been variously estimated, and, by some, supposed to be enormous, equaling some thousand pounds of weight. But it may be better judged of by the height to which it throws a column of blood, issuing from any artery of tolerable size, and which is not more than equal to the weight of a few pounds.

It may be determined also, by the force required to compress the sides of any large artery together, so as to stop the current of blood through it, a purpose that may be easily accomplished, by the pressure of a finger. The force with which the blood issues from the heart, cannot, therefore, be very considerable, and certainly not nearly equal to overcome the numerous obstacles above mentioned.

This is rendered further probable by the fact, that it is very difficult, and nearly impossible, to force a common injection from the arteries into the veins, in a dead body, the vessels generally bursting before this can be accomplished; so that the heart appears quite inadequate to move the blood, with the force and velocity that actually take place in the living body. Another argument against the notion of the heart being the chief or sole propelling power of the blood, is de-

a case, inquire minutely into the circumstances of the accident; ascertain the nature, degree, and exact situation of the injury; observe the condition of the iris and the pupil, and satisfy yourselves clearly respecting the state of vision. You will be thus prepared to speak decidedly, not only on the present state of vision, but on the important question of its ultimate loss or recovery. If there be mere concussion of the retina, and that partial, and no other injury of the globe, and if sight be only partially injured, recovery may be expected under prudent management; that is, if the body in general, and the organ, be kept in repose, and the access of inflammation be prevented. Total amaurosis immediately following the injury, is a most unfavourable symptom under any circumstances; the addition of considerable change in the pupil, extravasation of blood, and indications of actual laceration of the retina, make the case absolutely hopeless. Under the latter unfavourable circumstances, there is, at the time of the accident, no great pain in the part, nor increased redness, but in a few days the eye becomes painful, and grows red; the pain increases, inflammation commences in the internal tunics, and spreads to the exterior, the sclerotic and conjunctiva becoming red, with pain in the head, intolerance of light, increased lachrymal discharge. The necessity of the antiphlogistic treatment is obvious. As the violent symptoms subside, the eye goes into a state of atrophy, the globe becomes soft, diminishes in size, and shrinks into the orbit.

This concussion of the retina, and consequent blindness, sometimes take place from accidents, that you would hardly deem adequate to produce such an effect. I was consulted in the case of a young gentleman in the country, who had merely struck the eye with a pocket knife, when cutting a piece of whipcord; the blade of the knife, which was quite blunt, struck the lower part of the cornea. The lad was treated very judiciously; the practitioner on the spot applied leeches, and did all that could be done in such a case, but when he opened the eye, after a certain time, his friends were alarmed to find that he could not see, and he was consequently brought to town. The pupil was dilated and fixed, but not discoloured. The wound seemed to have penetrated the cornea and reached the iris, which adhered to the cicatrix, but it had not extended to the lens: the eye, however, was quite insensible to light. I considered the eye to be lost, and indeed it did not appear to me that any thing could be done. As the parents of the child were very anxious about him, a consultation was held on this case, which terminated in the same opinion. After three or four months, he was brought again to town, when the process of absorption had not only begun, but considerably advanced, so that the bulk of the globe was already considerably reduced.

Not long ago, I had occasion to see another lad from the country, who had received a blow upon the eye with a small stick from one of his companions. It appeared that the eye had been struck on its inner side, but although the injury had produced at the time no visible mark, or external redness, amaurosis followed, and was permanent. After the lapse of a few weeks, the sight of the other eye became impaired sympathetically, and I was afraid that it would be entirely lost; the retina, however, recovered. The influence of one eye upon the other is not confined to cases of disease. When an eye has been lost by accident, the other often becomes diseased sooner or later, without any imprudence, or any external influence that would be injurious under ordinary circumstances. This kind of occurrence is so common, that it is necessary to warn those who have lost an eye of their danger, and to point out the necessary precautions for avoiding it.

Our only chance for restoring sight, when the retina has been injured by concussion, is in keeping the organ quiet, in taking blood from the neighbourhood by cupping or leeches, and in the general treatment called antiphlogistic. After evacuations, blistering may be resorted to advantageously. A boy about six years old was lately brought to the Infirmary, having hurt his eye from the explosion of gunpowder. There was a small extravasation of blood into the anterior chamber, some enlargement of the pupil, which was motionless, and apparently displaced towards the upper part of the eye, and loss of vision. The prognosis was unfavourable; but sight was perfectly restored, the change of figure in the pupil remaining.

LECTURES

ON THE

THEORY AND PRACTICE OF PHYSIC,

BY DR. CLUTTERBUCK.

Theatre, General Dispensary, Aldersgate-street.

LECTURE IX.

Gentlemen,

WHENEVER a number of objects are to be considered, there is always an advantage in arranging them according to some method, which, of course, ought to be founded on a similarity of properties existing between them; the advantage of this is, that a number of objects may be considered together, and thus the study of them greatly abridged; the necessity of arrangement is in proportion to the number of objects requiring to be considered. Now diseases are sufficiently numerous to call for this, and, accordingly, they have been classed in various ways, and upon different principles.

The classification of diseases is commonly termed *Nosology*, but more properly, *Methodical Nosology*, a branch of study to which considerable importance was attached by the justly celebrated Cullen, who has furnished us with, upon the whole, the best system on this subject, though one that is far from unobjectionable.

A variety of methods have been employed in the classification of diseases, but most of them are liable to objection. Formerly, diseases were classed according to the position they occupied in the body, upon a plan that might be termed *topographical*, without any regard to either their nature, causes, or treatment. This is a sufficiently simple and natural arrangement, and is the one that was adopted by Bonetus, Morgagni, and Lieutaud, all of whom described diseases in this order, proceeding from above downwards, as those of the head, chest, abdomen, and so on; such a method, however, has nothing but anatomical convenience to recommend it, as it brings together diseases of very different natures, while it separates those that have the strongest practical points of agreement; besides which, there are many diseases of which it is not possible to assign the seat.

Diseases have been classed also according to their *causes*, as in the case of *endemic*, *epidemic*, and *contagious* diseases; this, however, goes but a little way, the causes of a great number of diseases being very imperfectly known or understood. The *degree* and *duration* of diseases have likewise been made a ground of arrangement in regard to the terms *acute* and *chronic*, and we have lately heard of the term *subacute*; but a mere difference in degree constitutes nothing that is essentially different, and is, therefore, no proper ground for arrangement.

An attempt has been made to class diseases according to their supposed nature or *proximate cause*. Upon this principle was founded a division of diseases into *sthenic* and *asthenic*, or those of excitement and of debility, according to the system of Dr. Brown, which was very popular a few years ago, but which is now deservedly abandoned. This method, indeed, of classing diseases according to their intrinsic nature, would be the best, if it were practicable; for it would, at the same time, suggest the treatment proper to be pursued; but, unfortunately, we know too little of the intimate nature of diseases to allow of our proceeding in this way.

Diseases have even been arranged according to their treatment. Thus tables of diseases have been constructed, with the remedies for each in an appropriate column, as you may see on referring to many old authors. This would do very well, if diseases of similar denomination always required the same treatment, which I need not observe to you is far from being the case, and therefore we have no occasion to dwell longer upon this.

By far the most popular classification of diseases at present, is that adopted by Dr. Cullen, in his work entitled, "Nosologia Methodica;" a work evincing great genius as well as deep research, and which, although objectionable in its principle, as I shall endeavour to show you, is, nevertheless, highly deserving of your attention, from the great mass of historical information it contains. Dr. Cullen's arrangement is founded principally upon the external characters, or obvious appearances, of diseases, a method borrowed chiefly from the writers on natural history, and which was adopted by Linnæus, Sauvages, and others, but which Dr. Cullen greatly extended and improved. An objection to this plan is, that the symptoms of diseases are often so numerous, as well as various, as to make it difficult to bring them within the compass of a definition, or to distinguish easily between such as are essential and those which are accidental merely; and what are only signs or symptoms are often considered as actual diseases, which, in this

way, are multiplied to an extreme and unnecessary degree. Thus, he makes above a hundred and fifty different *genera* of diseases, many of which are again divided into *species*, terms that imply differences that are radical and essential, to say nothing of *varieties* out of number. The distinctions proper in *natural history* have, however, very little application to the science of medicine; for diseases are, in fact, seldom more than varieties, deviations merely from the natural state; they are not distinct essences, as in the case with *species* in *natural history*. In this respect, diseases may be compared with those changes that are induced on plants or animals by culture, climate, &c., and which are so various as almost to defy methodical arrangement. Diseases, fortunately for you, gentlemen, are far less numerous than this system supposes; indeed, were it otherwise—were all the diseases that have different names here assigned to them, essentially different in their nature, the study of physic would be absolutely interminable. The truth is, that the essential differences between diseases are few, whether we regard them theoretically or practically; they are many in name but few in nature; they differ more in their seat than in their nature, according to the observation of Hippocrates, who says, "Omnium morborum, unus et idem modus est; locus vero ipse, differentiam facit."

Instead of any of the methods which I have now mentioned, I shall adopt one which you will find, I trust, more useful both for study and for practice, I mean, a *physiological* one, founded either in a similarity of structure or a community of function; and thus, *pathology* is founded upon *physiology*, which, as I before observed to you, is its only proper basis.

Whenever parts are similarly constituted as to structure and function, they are found to be similarly affected in disease; and, what is more to the purpose, they require a similar mode of treatment in all essential points. Thus, for instance, the *mucous membrane*, which lines the different passages of the body, both inlets and outlets, is of the same general nature, wherever situated, liable to the same forms of disease, and with nearly similar consequences; calling also for a nearly similar mode of cure. Thus I shall show you, that the treatment of *catarrh*, of *diarrhœa*, of *dysentery*, and so on, is essentially the same, with slight modifications in each particular case.

So, again, when a number of different organs concur in the performance of the same function, they are united together by the closest ties of sympathy, by which they mutually influence one another, in disease as well as in health, and are therefore most advantageously considered together. This will at once show you the foundation of the arrangement I mean to pursue, and which you perceive is strictly *physiological*. I shall group together those organs that are accustomed to act together, and which are engaged in the performance of one common function; considering, always, the disease as seated in the organ itself, and not in the function which it performs, as is often done. Thus, instead of treating of *dyspepsia* as a disease in itself, I shall consider it as an effect, or consequence merely, of a morbid condition of stomach. In the same way, a febrile state of system is not in itself a disease, but the effect and sign of topical inflammation in some organ. By proceeding in this way, the whole tribe of diseases may be arranged under a few general heads or classes, as the diseases of the *organs of respiration*, of *circulation*, of *nutrition*, and so on, premising, however, the disordered states to which the simple or component parts of the general structure are liable; viz., *blood vessels*, *absorbing vessels*, *nerves*, and *connecting membrane*. Upon this plan a few anomalies, doubtless, will present themselves, which, in the present state of our knowledge, can hardly be reduced within the limits mentioned; but this rather argues the imperfection of the science, than of the mode of arrangement here proposed. As our knowledge of the animal economy, and of its disordered states, becomes extended, these anomalies may be expected to disappear.

There are a considerable number of diseases that are so peculiar in their character, as to refuse to submit themselves to any general method of arrangement; I allude here to those we term *specific*, on account of their peculiarity in various respects, and by which they are distinguished from all ordinary diseases. They are peculiar in their origin, in their course, and in their termination, while their treatment is not governed by those general principles that apply to common diseases. Such you will find to be the case with *small-pox*, *measles*, *scarlet fever*, and many others, each of which requires to be separately studied.

I observed to you, that the *names* of diseases were a subject not altogether undeserving of your notice. Unfortunately, the nomenclature of physic is more imperfect than that of almost any other science. Now, names may serve to express the nature of the thing spoken of, which is, indeed, the perfection of

nomenclature; this is aimed at in modern chemistry, and has been, to a considerable extent, accomplished; but very little of this is to be found in physic. There is, indeed, some reason for this imperfection in regard to medical nomenclature, because the nature of diseases is, in too many instances, imperfectly understood. Or, secondly, names may express some striking and obvious property of the thing spoken of, and the doing this is doubtless a great advantage. This is accomplished in *natural history*, and, in a limited degree, in *medicine* also. Such is the case in regard to the terms *fever*, *diarrhœa*, *catarrh*, and many others, where the name expresses the prominent symptom, or character, of the disease. Such a mode of denomination is only objectionable when it leads to the supposition, that the obvious symptom is the disease itself, as is the case in the instances mentioned, which are not only spoken of, but actually treated, as if they constituted the real disease.

Names, again, may be altogether arbitrary, without any allusion to the nature or properties of the thing spoken of.—Even this is better than the employment of terms of doubtful import; for false ideas may otherwise be suggested, as is, in reality, the case with no small part of medical nomenclature, which might be well and advantageously superseded (if it were necessary to go to this extreme) by terms altogether arbitrary and without meaning. If you wish me to mention examples of faulty nomenclature in this respect, I need only refer you to the terms *nervous*, *bilious*, *venous congestion*, *hysteria*, *cardialgia*, *colica*, and many others. We are obliged, however, to take these things as we find them, for it would be a herculean task to correct the innumerable errors, and to supply the deficiencies, that exist upon this subject. We are chiefly to take care, that, in the use of terms, the sense in which they are employed be sufficiently understood. In some few instances, the names of diseases are properly expressive, both of the seat and nature of the disease, as in the instances of *pleuritis*, *gastritis*, *enteritis*, and some others, but much still remains to be done in this respect.

Having classed together the different organs in the manner proposed, it is in some measure arbitrary with which we begin, for every thing in the human body moves, as it were, in a circle, to which there is properly neither beginning nor end; so that, from whatever point we set out, we must return to the same again. There is, in fact, that connexion between the different parts of the system, that each is more or less dependent upon the rest, and can only be thoroughly understood by reference to the whole. If, for instance, we were to begin with the *nervous system*, namely, the Brain and its appendages, we should meet with something that could not be comprehended without reference to the *organs of circulation*; and, on the other hand, if the *organs of circulation* were to be first considered, it would be found that many circumstances, in regard to this function, could not be understood without referring to the *brain* and *nerves*; in short, it is not till we have gone the round of the whole structure and economy, that any one subject can be thoroughly understood, each having a reference to the others.

Upon the whole, I think, it will be most useful for us to set out with the organs that circulate the blood, namely, the heart and blood vessels, which constitute what may be called, the *circulatory system*. My reason for so doing is, that the greater number of diseases, and those of the most importance, are seated in these structures. Almost all the great and dangerous diseases that occur in daily practice are affections of this system. Blood vessels penetrate every where, and in a far greater proportion than other parts; in many parts, as the kidneys, they make up almost the whole of the structure, as is seen by carefully injecting them, and so of various others.

This, therefore, is our ground of choice in preferring what I have called the *circulatory system*, as the first subject to be treated of.

CLASS I.

Circulatory System.

This is what is commonly called the *vascular*, but more properly the *sanguiferous system*, and includes the heart, arteries, and veins; the structure and functions of which I shall now endeavour to explain to you, preparatory to the consideration of their diseases.

Physiology of the Sanguiferous System.

The heart, arteries, and veins contain the entire mass of blood, a fluid that, in the higher order of animals, is in continual motion, following always a certain course and direction, which are determined by the particular structure of the parts mentioned.

Considering the blood as setting out from the heart, this part requires first to be briefly described.

The heart is a fleshy organ, situated in the thorax, of a pyramidal shape, having its *apex*, or point, the most depending. Upon cutting through its substance trans-

versely, it is found to consist of two cavities, (or *ventricles*, as they are termed,) the sides of which are fleshy and fibrous, but of unequal thickness, the thickness being greater on the left side, while the right cavity is the larger of the two. These two cavities are quite distinct, having no direct communication with each other; so that, in fact, they may be considered as *two* hearts, placed side by side, but at the same time closely connected by an intermixture of their fleshy fibres, acting in unison, yet still separate as to their office, the one (the left) sending the blood throughout the general system; the other (the right) to the lungs merely.

Each side of the heart, or each of the two hearts, as we may express it, has two openings; one, by which it receives the blood from the veins; the other, by which it discharges the blood into the arteries, for distribution over the whole body. At these openings, *valves* or floodgates are placed, by which the course of the blood is determined, as follows. At the opening where the veins enter, the valves open inwards to the heart; consequently they prevent the return of blood into the veins. It can only pass out into the arteries, from whence it is prevented returning back again into the heart, by the valves that open outward, from the heart into the arteries.

From the heart, the blood next passes along the arteries, which divide, and subdivide, into smaller branches, till they are no longer visible; which is the case, indeed, long before they arrive at their terminations. These minuter branches are termed *capillaries*. The course of the blood through the arteries, therefore, is from the heart outwards.

We next find the blood in the veins, and moving in a slow current, in the direction opposite to that in the arteries, namely, towards the heart. This is proved, not only by the effect of ligatures, and puncturing of the veins, but also by the occurrence of valves in many parts of them; which allow of the blood moving in the direction stated, but prevent a retrograde course of it.

The veins, therefore, must receive their blood from the arteries, though the communication of the one with the other is not seen, owing to the extreme minuteness of the smallest series of vessels, which, on this account, are termed *capillaries*, as before observed.

The veins empty their blood into the cavities of the heart before mentioned, called *ventricles*; but not immediately. There is, as it were, an outer chamber to each of the ventricles, into which the veins discharge their blood; these are called *auricles*, and are muscular, though thin; from whence the blood is passed, at intervals only, into the ventricles, to be again thrown out into the arteries.

Thus it is evident, from the construction mentioned, that the blood moves, as it were, in a circle; proceeding from the heart, by the arteries, to every part of the body; and being brought back again to the heart, by the veins.

This, however, is to be observed, that the blood does not come back again to the same side of the heart, from which it set out. That issuing from the *left* side of the heart, comes back to the *right*; and that from the *right* side back to the left. This takes place in the following manner. The blood from the left side or ventricle of the heart, is discharged into the great artery (*aorta*) connected with it; and by the ramifications of this, is distributed throughout the body; whence it is returned, by the veins, back to the right side, (first into the auricle, and thence into the ventricle) of the heart. From this it is sent into the pulmonary artery, and distributed to the lungs by this artery, and returned, by the corresponding veins, into the left side (first into the auricle and thence into the ventricle) of the heart.

Of the powers moving the Blood.

The blood has no power of motion in itself, as far as we can judge; but is put into motion by the parts which contain it, namely, the heart and blood-vessels. These parts are fitted to this office by their structure, which is muscular or contractile. The muscularity is very remarkable in the heart, which consists almost entirely of muscular fibres. The muscular action in this part, may be both distinctly seen, and strongly felt. The fibres contract upon the blood, contained in its principal cavity; the consequence of which is, that the pressure forces it into the great artery, (*aorta*,) from which it is distributed to every part of the body. The contraction of the heart is momentary; it makes its beat, forces the blood into the artery, and then the contraction ceases. The heart is then in a fit state to receive a fresh quantity of blood, which it does from the smaller cavity (called *auricle*.) When it has thus received a fresh supply, distension is the consequence, and this distension is one cause of the renewed contraction of the heart. It again contracts, and forces this second quantity of blood into the artery; and so, by a succession of beats, a succession of contractions of the left ventricle, there is a continued supply of blood sent to the different parts of the system.

The arteries, especially the larger ones,

have an elastic coat of considerable thickness, which enables them to resist distension to a certain degree; but which yet does not bring their sides together, so as to obliterate their cavity; but, on the contrary, tends rather to keep them open, and distended to a certain extent. Hence after death, the arteries are found in a cylindrical form, and empty of blood.

Besides this elastic coat, which indeed makes up the principal part of the substance of the vessel, there is distinctly observable on the interior side of this elastic coat a layer of fibrous structure, which, there can be no reasonable doubt, is muscular. And upon this, the active power of the arteries depends.

The power by which the blood is moved onward in the vessels, has, however, been the subject of much dispute. Some physiologists consider, that the heart is the principal moving power of the blood. Others think, that it is impossible to admit this. It, is doubtless, very difficult to conceive, that the power of the heart should be equal to move the blood throughout the whole series of vessels; which it must do, upon this presumption. The obstacles which it would have to overcome are so great, and so numerous, that it is next to impossible to suppose, that the heart could be equal to such a purpose.

Some suppose, therefore, (and I think with more reason,) that the blood vessels have a share in the movement of the blood, and indeed that they have the greatest share in the performance of this function; the heart doing little more than supplying the arteries with blood; whilst the action of the arteries themselves, forces it onwards, from the larger to the smaller branches, and from these again into the veins; the minutest branch being possessed of contractile powers, by which the whole is kept in motion.

The muscularity of arteries has been denied, upon the ground, that, if their coats be examined, there is no distinct muscular or fibrous structure to be seen. One may, however, admit a muscular power in arteries, without supposing the fibres to be as large and conspicuous as those of the voluntary muscles. Parts that are exceedingly minute, cannot be well observed, as to their structure; and, therefore, the argument, that arteries are not muscular, because no muscular fibres are visible, is untenable. The muscularity of the uterus has been contested on the same grounds. But the powerful action of this organ, is a sufficient proof of its muscularity, without any reference to its visible structure. And the same may be observed with respect to arteries.

Admitting, then, for the present, that the heart and arteries conjointly, by the muscular power they possess, are the agents by which the circulation of the blood is effected, or by which, at least, the blood is forced from the arteries into the veins, in order to be returned to the heart—it is of importance to ascertain, what the relative share of each is, in the performance of this office; how much, in short, is due to the heart, and how much to the arteries. This point cannot, indeed, be accurately determined; but there are many circumstances which throw light upon the subject.

And first, the resistance the heart would have to overcome, supposing it to be the sole or chief cause of the blood's motion. This resistance arises from

1. The elasticity of the arteries, which must be overcome;
2. The viscidity of the blood itself;
3. The attraction that must exist between it and the sides of the vessels;
4. The pressure of neighbouring parts;
5. The extreme minuteness of the capillaries, both arteries and veins, and their frequent anastomoses;
6. The effect of gravity on the ascending column of the blood.

All these causes together, occasion a degree of resistance, which it would require a vast force to overcome. Now the force with which the heart contracts, has been variously estimated, and, by some, supposed to be enormous, equaling some thousand pounds of weight. But it may be better judged of by the height to which it throws a column of blood, issuing from any artery of tolerable size, and which is not more than equal to the weight of a few pounds.

It may be determined also, by the force required to compress the sides of any large artery together, so as to stop the current of blood through it, a purpose that may be easily accomplished, by the pressure of a finger. The force with which the blood issues from the heart, cannot, therefore, be very considerable, and certainly not nearly equal to overcome the numerous obstacles above mentioned.

This is rendered further probable by the fact, that it is very difficult, and nearly impossible, to force a common injection from the arteries into the veins, in a dead body, the vessels generally bursting before this can be accomplished; so that the heart appears quite inadequate to move the blood, with the force and velocity that actually take place in the living body. Another argument against the notion of the heart being the chief or sole propelling power of the blood, is de-

rived from the fact, that in fishes, the heart is single and not double, as in quadrupeds; consisting of one ventricle only, and which is not connected with the aorta, but with the blood-vessels that supply the gills, the organs of respiration in this class of animals; consequently the general circulation is again carried on, independent of the heart. In quadrupeds again, the chief supply of blood furnished to the liver by the *vena portæ*, is derived from the veins of the abdominal viscera; and it is not conceivable that in this case the movement of the blood in the liver can be much, if at all, influenced by the heart.

The muscular power of the arteries themselves, and probably of the veins also, though in a less degree, must be looked to, therefore, as the principal cause of the motion of the blood. And when we consider the great extent of this muscular structure of the arteries, that it exists in all, and probably the most so in the smallest, there is no difficulty in conceiving that this should be equal to the purpose. The muscularity of arteries is proved, if not *anatomically*, at least *physiologically*, from the following considerations:—

1. From their being under the influence of *stimuli*, that is, of the same causes which produce contraction in muscles. When tied and emptied of their blood, they gradually, though slowly, contract, so as to obliterate their cavity.

2. From their being supplied with nerves, and, as is said, becoming flaccid, when the nerves supplying them are divided; also from the effects of *paralysis*, which often weakens the circulation in a part.

3. From the increased force with which the circulation goes on in a particular part, although the action of the heart is undisturbed, or even where it is much weakened.

4. From the force and velocity being extremely different in different parts, while the action of the heart remains unaltered.

5. The quantity of blood is not nearly sufficient to fill all the vessels in the dead body, whereas, during life, they are always full. In life, therefore, they must be in a state of contraction, and much vital power is expended in effecting this.

6. The state of contraction in the vessels is not equal in different parts, but is frequently varying; hence the blood will be differently distributed at different times.

In my next Lectures, Gentlemen, I shall enter a little more fully into these proofs.

LECTURES
ON SOME
PRACTICAL POINTS OF SURGERY,
DELIVERED TO THE
Students of the late Borough Dispensary,
By MR. ALCOCK.

Lecture VIII.

Gentlemen,

In demonstrating the application of the bandage to the various parts of the head and face, I omitted to particularize its use in wounds of the nostril, and as a part of the operation for the hare-lip. In the former, the constant motion of the nostril in breathing, renders it necessary to support the divided part, and to afford perfect steadiness till union take place. The form of the nostril must be preserved, and this is best effected by inserting a light tube, a portion of quill, for instance, within it, covered by lint, or other soft material, so as accurately to fit the nostril, the previous adaptation of the divided surfaces having been effected by suture. Compresses must then be adapted to support the outer part of the nostril, and to fill up the hollow between the nose and cheek, so that the bandage may thus be made to bear upon the nostril without impeding the breathing.

The success of the operation for the cure of hare-lip, depends in a greater degree upon the efficiency of the support afforded by bandage, than upon the previous steps of the operation; for I have witnessed instances in which the operation has been neatly performed, as far as related to the removal of the edges, and bringing them into contact by pins or sutures; but with so little attention to the bandage, that the operation has wholly failed, the deformity being increased by the removal of the edges enlarging the gap. It is a short-sighted notion to believe that all which is essential to the patient's welfare consists in the neat performance of the operation, unless the patient be of that age carefully to guard against any accidental disturbance of the parts, which rarely happens, as the deformity is so great that few parents are disposed to suffer it to remain beyond the period of infancy or childhood. Hence the necessity of guarding against every accidental cause of failure, by taking those precautions which leave little or nothing to depend upon the voluntary co-operation of the patient. That mere pins or sutures, and strips of plaster, unaided by compress and bandage, often prove unsuccessful,

many of you must have witnessed, and also that accuracy in the adaptation of the means is essential to success. I have known instances of the bandage being so imperfectly and unequally applied after the operation for hare-lip, as to destroy by its pressure the part, the union of which it was destined to promote. In every instance the extent and degree of support should be proportionate to the exigencies of the particular case: too little is useless, too much dangerous, and sometimes destructive.

A continental author,* after alluding forcibly to the evils which he has known produced by the inconsiderate use of bandages, mentions an instance in which their too long continued application to the head produced gangrene of the soft parts covering the frontal and occipital protuberances.

Mr. Alcock demonstrated the mode of applying the bandage which he had been in the habit of using after the operation for the hare-lip, which consisted in making some turns of the narrow double-headed roller around the head; then fixing points by pinning the circular fold behind the ears, bringing forward the ends, and crossing them over the lip, supporting the cheeks by compresses, so as to prevent retraction of the lip, varying at each successive turn of the bandage the point of the head from which it proceeded, so as to render the pressure very moderate upon the lip, but the support behind the angles of the mouth sufficient to prevent the action of the muscles from disturbing the lip itself.

Firm pressure may be made upon any external part of the body, by means of the simple or double-headed roller and compresses, when skilfully applied.

In wounds of the neck, commonly called cut-throats, inflicted in attempts to commit suicide, the bandage is of great use. There is a proper time for all things, and by stitching and bandaging, if improperly timed, you may suffocate your patient, an accident not unfrequent; whilst without the aid of the bandage, and sometimes also of sutures, judiciously adapted to the circumstances of the case, much time may be lost, and much suffering incurred, which might be avoided. The late Mr. C. T. Haden published the details of a case of cut-throat successfully treated,† in which the principles to be kept in view in the treatment of similar accidents are clearly stated. In the case above alluded to, I shared the responsibility with Mr. Haden till the period of danger was past, and happened to be present a very short time after the infliction of the wound; Mr. Haden having witnessed cases under my care, which terminated favourably under similar treatment, there existed none of that diversity of opinion which sometimes unfortunately frustrates the benefits to be expected from consultations.

The uses of the bandage in such cases is two-fold; 1st. To sustain the divided parts in contact; 2nd. To prevent the motion of the head, which, if permitted, so readily disturbs the parts after they have been adjusted. The first intention must be effected by placing the wounded parts in that position or contact in which it is determined they should remain, supporting them in the first instance by the fingers, subsequently substituting compresses, and the support of a bandage applied according to circumstances, to act in the same direction in which the temporary support of the fingers was required. The difficulties are often considerable, for the patient is generally maniacal; but by surrounding the head and the chest by bandages, and connecting the two by other strips of roller, not only may the most favourable position be selected, but retained in spite of the efforts of the patient. The practicability of this will be apparent in examining the steadiness of the mast of a ship, which is chiefly effected by braces attached to the mast, and to various fixed points of the vessel. A few turns of the double-headed roller being taken round the head, fix one point near the temple by pinning the last fold to the circular part, carry it over the top of the head, and fix it to the opposite temple; fix the other half of the bandage similarly to the opposite temple, and then, the head being held in the proper position by assistants, carry the bandages from the temples to the bandage surrounding the chest, and fix them by means of pins or stitches, carry the bandage from the chest to the head, and from the head to the chest, varying the connecting points, and changing the direction till perfect steadiness be obtained. The crossing of the double-headed roller, or the use of pins with the single roller, answer nearly the same purpose; the crossing is the firmer, but the twisting at the point where the bandage is crossed, makes a sort of knot, which is hard and irksome, by pressing unequally at that point.

There are many niceties and precau-

* Lombard: Instruction Sommaire sur l'Art des Pansemens, Strasbourg.

† Transactions of the Associated Apothecaries, and Surgeon Apothecaries of England and Wales, Vol. I. 1823.

tions relating to the use of bandages, which are too frequently neglected, and I might illustrate this remark by reference to the great majority of fractures of the bones of the extremities, which fall under the care of the surgeon; but I fear our time will not admit of entering upon this full detail. The extent of these Lectures is limited, knowing that your other studies are already, perhaps, too numerous; and further, in relation to this Institution, I consider it due to my able colleagues not to prolong these Lectures beyond a certain proportion of the year, so as to afford them the opportunity of communicating to you such observations and instructions in their respective departments, as they may deem conducive to your welfare and improvement.

I make this remark that you may be aware of the necessity of further observation and reflection; and that you may consider the intention of these lectures as subservient to the direction of your studies, rather than as affording full and complete information on each subject.

I shall therefore proceed to make a few observations on the use of the bandage in the treatment of ulcers, varicose veins, abscesses, sinuses, diseases of the joints, sprains, &c.

In each of these diseases the most essential part of the local treatment is that support which may be afforded by the proper application of the bandage. I must, however, impress upon your recollection, the importance of attention to the constitutional treatment of local disease; it rarely happens that any disease, at first confined to a part, and perhaps produced by mechanical injury, continues for a considerable time without other parts becoming disordered; and although none of the important viscera is at all times exempt, yet disorder of the organs subservient to nutrition, is the most frequent concomitant of local disease; but whatever be the nature or extent of the constitutional derangement, the removal of it by appropriate means forms an important part of the remedial treatment.

In ulcers of the lower extremities there is no application of medical substances to the sores, although the proper adaptation of them be highly important, which in the greater number of instances, can supersede the necessity of the support which may be afforded by the use of the bandage. Instead of confining the patient to bed, or keeping the limb in the horizontal position, the patient may be permitted to take exercise, and even to follow avocations not extremely laborious, without preventing the healing of the ulcer. The support should be equable, or rather firmer towards the lower part; for if applied tighter above than below, the return of the blood is impeded, swelling is the immediate consequence, and as I have before had occasion to notice, if this partial tightness be excessive, strangulation of the limb may ensue.

The mode of using strips of plaster, as recommended by the late Mr. Bainton, is merely a neat and consequently efficient use of the bandage, and provided the plaster be not irritating or injurious, it matters little of what materials it be composed, or whether it come in contact with the ulcers or be separated by any other dressing. The bandage being applied over it, any slight inequality of pressure of the strips may be rectified or equalized by the roller above. (Mr. A. demonstrated the mode of dressing with strips and bandage.)

The patient's feelings will readily inform him if the bandage be properly applied; for the support to the limb and the comfort with which he is enabled to use it are unequivocal; whilst the suffering from an ill-applied bandage will often do more harm in twenty-four hours than the most skilful treatment can effect benefit in the space of weeks. If the bandage be well applied, the smoothness of the limb when the bandage is removed will prove it, whilst the only circumstance which can exceed the disgrace of the surgeon or pupil who on removing the bandage which he has applied shall exhibit a limb surrounded by ridges and hollows, like an ill-conditioned turnpike road, is the actual distress and injury which the patient sustains by it. Ulcers of the leg are often complicated with varicose veins, or rather the state of a varicose limb is peculiarly favourable to the production of ulcers from slight causes and to retard the healing of the ulcers. In these cases there is frequently a preternatural fulness of the vessels throughout the body, sometimes also it is combined with visceral disease, hence the constitutional treatment must be varied according to the particular indications in any given case.

The support of the limb by the roller, or laced stocking, equally applied, is the most important part of the local treatment. In ulcers, complicated with varicose veins, when the patient on using great exertion has been frequently subject to sudden and alarming hæmorrhage, I have tied the vein higher up. The obliteration of the continuity of the vein by ligature or division of the vessel higher up, is still practised by some deservedly eminent surgeons; but although I have not experienced any of the alarming evils de-

scribed as resulting from this simple operation; yet, as I before stated, I have given up that practice, knowing that the safety of the patient can be perfectly attained without any other operation than the well applied support to the limb, due attention being given to remove any derangement of the general health. Death, however, has been known to ensue from tying a vein; in one instance the operation was not wholly free from violence; the vein was lacerated, and the first symptoms of the rising inflammation were disregarded. There is a weighty responsibility attaches to the surgeon, whose judgment often decides the fate of the confiding patient. It has been remarked by many that since publicity has been given to surgical operations, their frequency in some public institutions has been much diminished; whether this diminution have taken place or not, I do not presume to determine; that the necessity for operation may in many instances be obviated, is in accordance with the principle which I have before alluded to, laid down by that great improver of surgery, the late Mr. John Bell, who thought "an attention to the common and humble duties of the profession more commendable, more becoming, more like good sense and sound judgment, than a passion for bloody operations and extraordinary cures."

In the treatment of abscesses and sinuses, by the careful use of compresses and bandage, the union of the surfaces may be often effected without having recourse to the more painful alternative of slitting open the sinuses, and the more tedious result of a wound slowly filling up by granulations.

Many of you had an opportunity of witnessing the case of —— Sard, a young woman, a patient of this Institution, who neglecting a contusion upon her knee, suffered inflammation and the formation of abscesses to a great extent. Much of this mischief might have been prevented by opening the abscesses early; but to this she would not consent, and the opening was the effect of ulceration. The suppuration surrounding the knee was extensive, and deep-seated fluctuation might be ascertained on the outer side of the thigh, extending from one to two hands' breadth above the knee. From the delay occasioned by her refusing to have the matter evacuated some sloughing of the cellular membrane took place; the deep-seated abscess in the thigh communicated with that at the knee. By carefully preventing the matter to accumulate in the sinuses, by compresses applied in the direction of the sinuses, and the support of the limb by bandage applied from the foot upwards, the extent of the sinuses speedily diminished. Attention was given to the state of her health, which had suffered considerably, and as soon as the sloughing portion of the cellular membrane had separated, the ulcers began to diminish; the sides of the sinuses, thus kept in contact, coalesced, and at the period of three weeks after her admission, the limb was firm; the discharge from the sinuses had entirely ceased, and a slight superficial ulceration on the outer side of the knee was all that remained. This soon cicatrised.

In the treatment of ulcers, &c., great care is necessary to make the successive turns of the bandage fold over each other in regular proportion. Some prefer that each fold should cover one half of that underneath, by which every part of the surface is doubly covered by the bandage; others are in the habit of making the upper fold cover one-third over the under, so that when the bandage is applied the centre third of each fold of the bandage covers the surface singly, whilst the edges to one-third the width of the bandage are overlaid and consequently double. The half turns, reverses, as they are sometimes termed, should only be made when the firmness and smoothness of the bandage cannot be preserved without them; some fasten the bandage with a pin at every half turn or reverse; but it is seldom necessary. As there is a loss of firmness at each half turn of the roller, it should not therefore be used oftener than necessary. It may even in the best formed leg be entirely avoided, and the support of the bandage be equally afforded from the toes to the knee.

In cases where the very firm application of the bandage to a limb is required, it becomes necessary to support the fingers or toes by applying separate small bandages to each, before proceeding to bandage the hand or instep.

In diseases of the joints, particularly in chronic inflammation, the judicious use of the bandage is of the greatest service, and to an extent perhaps little likely to be credited by those who have been accustomed to see diseased joints alternately treated by blisters and poultices month after month. I could adduce instances in which, after limbs had been doomed to amputation, under all the advantages which a hospital could afford, (and they are many and valuable,) that a very few months' use of that support effected by compresses and bandage, with attention to the general health of the patients, recovery had been effected. One material circumstance in

the change of treatment in these cases has been the avoiding of that frequent source of irritation, the introduction of probes from day to day to search for diseased bone,—a practice which is often productive of serious injury to the patient.

The success of Mr. Young's treatment of diseases by pressure, as it has been termed, but rather of the support of the vessels weakened by disease, has been doubted by many; but were the same degree of attention and accuracy of adaptation which characterize that gentleman's treatment carried generally into effect, it would prevent the necessity of amputation in many instances in which, under the usual routine of practice, that operation has been too often considered the only resource. The difference in the results of country practice, compared with that of town, has generally been attributed to the purity of the air in the country; but I believe a more rational explanation may be found in the difference with which the respective surgeons in town and country estimate the importance of the humble, every day duties of the profession.

In London, the general want of success in the treatment of compound fractures of the limbs is well known, whilst in the country the greater part are saved; but the saving of a shattered limb very often costs the surgeon from six to twelve months of anxious personal attendance daily; whilst the favourable result might, at any period before recovery, be frustrated by what many might consider very trivial errors: on the other hand, the stump, after amputation, requires or receives little attention subsequent to the operation which is not performed by the dresser, and, under favourable circumstances, does not extend beyond three or four weeks.

In sprains, that protracted lameness, which is so distressing to the patient, and annoying to the surgeon, may be generally avoided by the use of the bandage, after free local depletion shall have unloaded the vessels of the surrounding parts.

In fractures, &c., as much care is required in taking off as in applying the bandage. As a general direction, you may observe that the comfort of the patient and the despatch of business are both promoted by having every thing likely to be required in readiness before the dressing be begun.

The daily opportunities afforded you, both of applying bandages under immediate superintendence, and of seeing them used by way of example, when any difficulty has occurred, will suffice to direct your attention. General directions, however candid, can scarcely be extended so as to meet every case that may occur. Much must be left to your own judgment in the choice and adaptation of the means to be used, whilst your practice must be frequent, to enable you to acquire that tact or skill which is essential to deserve success.

REVIEW.

Practical Remarks on Lacerations of the Uterus and Vagina; with Cases. By THOMAS M'KEEVER, M.D., Late Assistant to the Dublin Lying-in-Hospital. 8vo. pp. 82. Longman and Co. London J. Cumming, and Hodges and M'Arthur, Dublin, 1824.

Of all the casualties to which parturient women are exposed, rupture of the uterus is the most appalling. Happily, however, the accident is comparatively rare, and is seldom found in the records of midwifery, the practitioners of which, as a body, are extremely respectable, and cannot be accused of concealment either from ignorance or design. From the observations of Dr. M'Keever, the lower orders, who are attended by a class of midwives peculiar to themselves, are the most frequent victims of this melancholy injury.

"Thus," says he, "of 8,600 patients delivered in the Lying-in-Hospital of this city (Dublin) during the years 1819-20, and 21, there occurred twenty cases of ruptured uteri;* being in the proportion of one to four hundred and thirty.† Now it is well known that many practitioners,

* Several of these patients had the uterus ruptured before coming into the hospital, while others were admitted after having suffered severely from previous mismanagement.

† Mr. Burns makes the proportion one in 940 cases.

extensively engaged in midwifery, have passed through a long professional life without having met more than two or three instances, at farthest, of this accident; a circumstance which could hardly have happened, were all classes of females equally predisposed to its occurrence. Dr. Willan, in a note prefixed to his interesting report on the diseases of London, states, that a physician of eminence, in attending 2,982 ladies, from the year 1776 to 1800 inclusive, lost thirty patients, one of whom only, died in consequence of a laceration of the uterus; and from conversations which I have held on the subject with practitioners of many years' standing in this city, I am inclined to think that this may be looked on as the fair average proportion among females in the better ranks.

"Should further observations tend to support this conjecture, it will, I conceive, admit of explanation on the following principles.—In the first place, females in the lower walks of life are, from their occupations, habits, &c., much more exposed to falls, bruises, and other accidental injuries during pregnancy, in consequence of which, the uterus may be either ruptured at the time they have sustained the violence, or may be so weakened in structure at some particular point, as readily to give way during its efforts to accomplish delivery. Secondly, from inattention during infancy and childhood; from poor, spare diet; from confinement in a close, impure atmosphere; and a variety of causes, they are more subject to rachitis, a disease which is well known in many instances to lay the foundation for a deformed condition of the bones which constitute the pelvis, thus proving a source of tedious and of difficult labours at an after period of life. Lastly, they are more liable to fall into the hands of ignorant, inexperienced midwives, who not unfrequently, with the view of expediting the process of delivery, rupture the membranes at an early period of the labour, in consequence of which, the firm unyielding head of the child is prematurely brought in contact with the passages, exciting by its pressure, swelling, inflammation, and an interrupted state of the circulation in the uterus and adjacent parts. In such a case should there, unfortunately, exist any disproportion between the parts of the mother, and the head of the infant, or should proper measures not be employed to obviate distressing symptoms, and that the labour pains continue to recur with extreme violence, there is great risk of the uterus giving way, the laceration being of course most likely to occur at that part where the greatest pressure has been sustained."

The author supposes that the sex of the infant may also have a share in occasioning rupture of the uterus.

"Thus, of the twenty patients to whom I have already alluded, there were delivered of boys fifteen, of girls five, a circumstance for which I conceive the experiments of Dr. Clarke, of this city, afford a satisfactory explanation. Dr. C. (in his second letter to Dr. Price) informs us, that, having measured the heads of sixty male and sixty female children, born at the natural period, he found that the circumference in the males was, on an average, fourteen inches, while in the females it was only thirteen five-eighth inches; and the arch from ear to ear over the crown seven one-fourth inches in the males and only seven one-fifth in the females. Further, of 120 children examined there were only six in whom the circumference of the head exceeded fourteen one-half inches, and these six Dr. Clarke found were all males.

To some this difference may appear inconsiderable, and of little importance in a practical point of view, but in cases of difficult parturition from a distorted condition of the pelvis, even the twentieth part of an inch may materially influence the result both to mother and child. Dr. Hamilton, the present Professor of Midwifery in the University of Edinburgh, was accustomed to illustrate this point in a familiar, but satisfactory manner, by placing a common towel over the head of a fœtus of the ordinary size, when it was found altogether impossible to force it through the cavity of the pelvis; although previous to this slight addition to its bulk, its passage was not attended with the slightest difficulty.

I may further observe, that it is owing to this cause, namely, the difference in circumference between the male and female head, that a greater number of males than of females come into the world still-born, and that in those very unpleasant cases in which we are obliged to have recourse to the formidable expedient of perforating the infant's head in order to save the mother's life, the greater number of the children will be found to be of the male sex."

Symptoms of a Rupture of the Uterus.—When the uterus gives way, the following is generally the history of the case:

"The patient, who, in all probability, has had a succession of tedious and of

difficult labours, after encountering for many hours, perhaps for days together, sufferings of the most acute and harassing description, and at a time when her anxious friends and attendants are impatiently looking forward to the happy moment which is to free her from her misery, and render her a joyful parent, is suddenly attacked with an agonizing, crampish pain, referable to some particular spot in the abdomen, during the intensity of which she exclaims, that something has given way within her; she becomes sick, vomits a little, and complains of the child having risen to her stomach. Her pains cease, or are altered in character; she looks pale and ghastly, her countenance expressing great mental and bodily distress; she writhes and twists, with the severity of her torture,* the hand being applied to that part which she describes as the principal seat of it; she sighs often; complains of stitches about the heart; gazes wildly and anxiously about her; has embarrassed breathing; and desires to be raised up in bed.

When these symptoms are present, the experienced practitioner will feel but little hesitation in deciding on the nature of the case; but if in addition, we find that there has been some hæmorrhage from the vagina, that the presenting part has receded, that the abdomen has become so exquisitely tender as to render the slightest pressure intolerable, having, at the same time, become more prominent and of an irregular shape, and that some projecting part of the infant can be distinguished immediately under its parietes, the case no longer admits of the possibility of doubt.

We are not to expect, however, that in every instance the symptoms will be so obvious, or so well defined, as those I have stated. Thus, where the head is low down, firmly impacted in the pelvis, and that the injury is confined to the muscular substance of the uterus, its peritoneal covering continuing entire, we are deprived of several of the leading marks. In the first place, there will be no hæmorrhage *externally*, in consequence of the vagina being blocked up; secondly, there will be no receding of the presenting part; and lastly, we will be unable accurately to distinguish any part of the infant immediately under the abdominal parietes."

"On some occasions the uterus has been known to give way during the very pain which effected the delivery of the child, instances of which may be found in the works of Crantz and Guillimeau. Under such circumstances, unless from the symptoms we are led to make a manual examination, the case, at least during the life-time of the patient, must be involved in considerable uncertainty.

And, finally, it has happened that a lying-in patient has been affected, and has ultimately expired, with several of the symptoms of a lacerated uterus, although the substance of that organ has sustained no injury whatever. In this case, an extremely rare one, it must be admitted, the peritoneal covering of the uterus gives way at some point or other, in consequence, I should presume, either of over-distension, or of previous disease in that membrane. The only case of this kind with which I am acquainted, is that recorded by the late Dr. John Clarke, in the third volume of the Transactions for the Improvement of Medical and Surgical Knowledge. The patient, a young woman, aged between twenty and thirty, was taken ill of her first child about eight o'clock in the morning; she continued in labour not more than two hours when she was seized with great pain in the belly and nausea, but had no vomiting. Great irritability succeeded, with faintness and excessive restlessless, and at half an hour past ten in the evening she died undelivered. A practitioner in midwifery was sent for, who delivered her of a dead child, without any difficulty, the membranes being entire. On the following day the cavity of the abdomen was examined, but no morbid appearance whatever was discovered in the viscera. The uterus and vagina, which, it was observed, formed one continuous canal, were found to have sustained no injury whatever, but on turning down the fundus uteri over the pubis, between forty and fifty transverse lacerations were discovered in the peritoneal covering of its posterior surface; none of which, observes Dr. Clarke, were in depth above the twentieth of an inch, and many were merely fissures in the membrane itself. The edges of the lacerations were thinly covered with flakes of coagulated blood, and about an ounce of this fluid was found in the fold of the peritoneum, which dips down between the uterus and rectum."

Lacerations of the uterus and vagina are frequently involved in much obscu-

* Occasionally, however, the patient lies perfectly quiet on her back, with the knees drawn up; in this position the abdominal muscles are relaxed, by which the pressure on the lacerated part is, to a certain extent, diminished.

rity, hence a careful inquiry should be made into the whole history of the case, not deciding hastily, or from individual symptoms, but after a minute and careful investigation of every circumstance connected with the state of the patient. The author has detailed, at considerable length, the symptoms which indicate a laceration of the uterus, "from a conviction that, in many instances, the little chance the patient has had of surviving the accident, has been altogether destroyed by the practitioner mistaking the true nature of the case."

"Thus," says he, "in the remarkable instance of Mrs. Wilkins, recorded by Mr. Goldson, in his ingenious pamphlet on Lacerations of the Vagina, the child, from the cause I have stated, was allowed to remain nearly four and twenty hours' pressing on the delicate irritable viscera before assistance was given.—Saviard, in his 25th Observation, p. 131, relates a nearly similar case, in which the infant having been for two days lodged among the bowels, the woman died undelivered. Nos. 11 and 13 of Dr. Douglas's Collection of Cases, may be considered of the same description. And of the pernicious effects of procrastination, case No. 7 affords a useful and instructive instance. The patient had been in labour of her tenth child for some hours, when she was seized with anxiety and oppression about the præcordia, accompanied with nausea and vomiting. She complained of great tenderness of the abdomen, with inability to rest on the right side; and though the child was no longer to be felt, per vaginam, yet in the umbilical region its limbs were plainly to be distinguished through the integuments. Under these circumstances Dr. William Hunter was called in; but from an unwillingness to interfere, the woman remained undelivered until the third day, when she complained of twitchings through the whole abdomen, and of great uneasiness from a lump in the belly, which moved from side to side, "seeming to burn as it moved." The friends becoming impatient, Mr. Pinkstone, a practitioner of eminence, was joined in consultation, who insisted, at all hazards, on the patient being delivered. This advice was followed, and though there was some resistance from the os tincæ to the introduction of the hand, yet she bore the operation well and no hæmorrhage ensued. After delivery she encountered a great variety of painful and unpleasant symptoms until the fourth week, when she ultimately began to mend; but becoming impatient at her slow recovery, she insisted on being removed into the country, where she was in a short time attacked with nausea, and vomiting of a blackish coloured fluid, which soon terminated her existence. Now, in this instance, I cannot help stating my belief, that had the patient been delivered immediately after the nature of her situation had been ascertained, her chance of recovery would have been materially increased. Under all the disadvantages of her situation, we see what efforts nature made in her behalf,—efforts which, after all, might have ultimately proved successful, but for her own unwillingness to submit to proper restraint."

Treatment.—We believe most practitioners at present agree, that immediate delivery offers the only chance of saving the patient. Not long ago, however, a different opinion pervailed. Dr. Hunter thought otherwise, and resigned such cases to the natural efforts of the constitution. The late Dr. Denman adopted the opinion, declaring it to be founded both on reason and experience, to which we cannot assent. That it is *contrary* to reason is evident, and the cases on record, in which an opposite plan of treatment succeeded, prove beyond doubt that it is contrary to experience. Dr. Dewees, after referring to numberless cases, in which the delivery was effected either per vias naturales, or by means of gastrotomy, thus continues:—"We can most successfully destroy Dr. Denman's celebrated aphorism on the subject of the rupture of the uterus, by producing cases of the most triumphant success following the interposition of art."—This, we think, should set the matter at rest, more especially as there is no instance extant, at least with which we are acquainted, where the woman recovered at the full period of utero-gestation when the child was permitted to remain undelivered. There are a number of cases upon record which

purport to be recoveries after the rupture of the uterus, where the fœtus was permitted to remain in the abdomen,—but they are liable to strong suspicion, and are far from standing the test of rigorous examination; they appear to be cases of extra-uterine conception, or of but partial rupture of the uterus*.—By partial rupture we mean where the muscular substance of this organ has suffered laceration, but where the wound does not pass through its peritoneal coat. Of this kind are the cases related in the *Journal de Medecine* for 1780, also those by Drs. Bell and Sims. Dissections proved, in several of these cases, that this membrane had merely suffered distension. From all then that we can learn from others, or that can be suggested to us by our own experience, we cannot see one single reason for withholding aid from the afflicted woman who may have suffered this calamity; except, indeed, in that forlorn condition of the patient, where she would die before this aid could be given her.

"It has been asserted," says Dr. M'Keever, "that in cases of extra-uterine conception the patient frequently suffers so little inconvenience, that she is for a length of time in doubt, whether the fœtus is really contained in the proper cavity or not. The analogy, however, by no means holds good. In the first place, a woman in this situation carries about her, at least until the treatment of the ordinary duration of pregnancy, not a putrid, lifeless mass, but a living infant with a smooth investing membrane. Secondly, the viscera of the abdomen are slowly and gradually habituated to the presence of the foreign body. And lastly, the case is not complicated [with a serious and alarming injury, consequently the powers of the constitution are as it were centered in one simple, undivided effort, either that of getting shut of the fœtus altogether by various outlets, or of enclosing it in a crustaceous covering, by which its decomposition is retarded, or altogether prevented."

To argue the propriety of this practice at greater length would, we think with the author, be "altogether unnecessary," the sensible and judicious remarks of Dr. Douglas, in his pamphlet on the subject, having satisfactorily proved, "that if the expedient of immediate delivery has failed to preserve life, it has, at all events, superseded no mode of practice which promised a chance of safety to the patient."

"There is one point, however," says the author, "about which there still exists some difference of opinion even among the best informed and most experienced practitioners, I allude to those very unfortunate cases in which the uterus bursts, and the child escapes among the bowels, prior to the dilatation of the mouth of the womb and external parts. Should we, in such a case, persevere in our efforts to dilate the os uteri, and thus deliver by the natural passages, or would we afford the patient a better chance of surviving the accident, by cutting through the parietes of the abdomen, and extract the infant by what has been termed, the spurious cæsarian section.—This is undoubtedly a point of much difficulty, and one that requires the most mature and serious deliberation; at the same time I may observe, that the general impression among the most intelligent physicians and surgeons in this city, is decidedly in favour of the latter proposal. And indeed when we take into account the dangers attendant on a forcible dilatation of the passages, such a preference must at once appear both rational and just. 'To dilate the os uteri forcibly,' observes Mr. Burns,* 'and thus to extract the child, is a proposal so rash and so hazardous, that I know of none in the present day who would adopt it.' Instances have occurred, in fact, in which the whole body of the uterus has been torn from the vagina by violent attempts at dilatation. Such, it is likely, was the cause of death in many of the cases alluded to by Peu and Mauriceau, although these writers do not appear to have been altogether aware of the circumstance.

* "Instances where women have survived this accident, and have recovered, though the child was allowed to remain in the cavity of the belly, have been recorded, but their authenticity can only be believed by the credulous."—*Hamilton's Cases.*

* See Burns' Midwifery, p. 243.

The former, in his Pratique des Accouchemens, tells us 'that the patient must inevitably perish, if much force has been employed in the dilatation of the uterus:' and the latter, in his 49th Aphorism, informs us 'that in those cases of uterine hæmorrhage where it becomes necessary to hasten delivery for the purpose of saving the woman's life, and that on examination the os uteri is found *thick* and *rigid*, the patient will in general die; but that if we find it thin and dilatable, she will have a better chance of recovery.'—Now it is, I conceive, by no means improbable that in several of these cases the patients died, not from the mere loss of blood, but in consequence of the violence done to the uterus. It is obvious, from the rigid, unyielding state of the passages described by Mauriceau in this Aphorism, that there must have existed considerable contractile power in the uterus, a circumstance which would, in the majority of instances, have prevented the hæmorrhage proceeding to such an extent as to endanger the life of the patient.

"Further I may remark, there are a few well authenticated cases on record, where the expedient of cutting into the abdomen has been attended with the most satisfactory result; whereas there is no instance whatever of recovery after a violent and forcible dilatation of the passages. In the third volume of the Journal de Medecine for 1768, a case is recorded by Mons. Thiband des Bois, in which this operation was successfully performed several hours after the uterus gave way,' although too late to save the infant. The woman, he informs us, recovered perfectly, and suffered little more than she would have done after an ordinary delivery. M. Lassus, also, in his Pathologie Chirurgicale, tom. ii. p. 237, relates the history of a case where this operation was twice had recourse to on the same individual, with complete success. As the case is very interesting, and bears directly on the point we have been discussing, I may here mention a few of the particulars.

"A young woman of robust constitution, and pregnant for the fourth time, was seized with labour pains at the full period of uterogestation. One pain was so particularly severe as to occasion her to faint; immediately after which she had a discharge of blood from the vagina: the pains ceased, the faintings became more frequent, the extremities cold, and the pulse agitated. Convinced that the uterus was burst, and that delivery could not be effected in the natural way without endangering a further enlargement of the rupture, the operation of gastrotomy was performed eighteen hours after the accident, and in six weeks the woman was able to attend to her ordinary duties. This woman again became pregnant, and on the 30th December, 1779, Mons. Lambron was a second time called to her assistance. When he arrived, he found her with slight pains, the os uteri being sufficiently dilated to enable him to ascertain that the head presented favourably. In this state she continued for some time, when she was seized with a sharp pain, and the unfortunate woman announced, by the shrillness of her cry, that the uterus was again burst. She fainted, and the pains became weaker. The head of the child receded, and could not be felt, even by carrying two fingers for some distance within the lips of the laceration. Gastrotomy was immediately had recourse to, and the child lived about half an hour. This operation terminated, as on a former occasion, in the complete recovery of the patient, who became pregnant for the third time, and was delivered naturally in August, 1781, of a healthy child, but of rather small size."

In the second volume of the Quarterly Journal of Foreign Medicine, a case is related on the authority of Messrs. Bernard, Latouche and Jopet, in which a similar operation was performed with the most favourable result, although the infant and secundines had been lodged for a considerable number of hours among the bowels. The patient, a feeble, delicate woman, was taken in labour of her fourth child, but had not been ill many hours when the uterus suddenly gave way at its fundus, and the infant with the secundines passed into the abdominal cavity. The cæsarean operation being considered the only resource, was performed about twelve hours afterwards.

The child was found among the bowels, surrounded by the waters of the amnion, mixed with a considerable quantity of bloody serum. The intestines were inflamed, in consequence, it is stated, of the pressure they had sustained. In about seven weeks the woman was restored to perfect health.

We shall conclude the subject of Treat-

ment, by quoting the following observations.

"However practitioners may differ in opinion," says the author, "with regard to the management of those cases of lacerated Uterus in which the fœtus and secundines have escaped altogether among the bowels, there exists but one opinion as to the propriety of immediate delivery, where the head of the infant remains impacted in the pelvis after this accident. Under such circumstances we employ either the forceps or perforator as the particular situation of the patient may require."

Portending Symptoms.—Some writers have supposed that the rupture of the uterus might be foretold by premonitory symptoms, and our author has accordingly devoted two or three pages to the subject; into which we have no space to follow him. These "portending signs," like other omens, are at best equivocal until confirmed or falsified by the event.

The author's cases are next in order, but we observe with regret, that our limits will permit us to quote but one, which is, however, extremely interesting, and, as far as we know, perfectly unprecedented.

A case of rupture of the Vagina and Bladder, accompanied with the loss of a considerable portion of the intestinal canal.

"M. M., a robust, healthy young woman, was taken ill of her second child* on the evening of the 29th of July, 1820, and, after thirty hours' severe, unremitting labour, during which she complained of excruciating pain in the small of her back, the pains ceased, the abdomen became exquisitely tender, she vomited much, and her pulse was scarcely to be felt. These symptoms alarming the midwife who had charge of her, she determined on sending for further assistance: a medical gentleman, residing several miles off, was accordingly procured, who finding her on his arrival excessively low and apparently in a dying state, determined, as the head was firmly impacted in the passages, to perforate the cranium, and terminate delivery by the crotchet. This operation occupied a considerable time, and was ultimately accomplished with much difficulty, partly owing to the very large size of the infant's head, but principally to a deficiency of room in the cavity of the pelvis. The placenta was removed with great facility, and, on introducing the hand into the Vagina, a rent was discovered high up at its posterior part, which extended round to the neck of the bladder, and communicated freely with that viscus. After delivery, feeling much oppressed and exhausted, she got some wine and an anodyne draught, which recruited her a good deal; the vomiting was relieved, and she had several hours' refreshing sleep. The following day she made little or no complaint, except of general weakness, and appeared to be going on in every respect as well as could be expected. In the afternoon, however, while one of the women about her was engaged in adjusting her bed, she observed a substance about six inches in length, and of a smooth, shining appearance, hanging from the external parts; but supposing that it was merely a portion of the membranes which had remained after the removal of the placenta, she contented herself with passing a portion of rag through the *loop* which it formed in its descent, hoping that in a few hours, at furthest, the efforts of nature would prove sufficient for its removal. She had taken some purgative medicine at an early hour in the morning, which griped her a good deal, but had no effect whatever in procuring passage from the bowels.

Tuesday, August 1st. She made no complaint, unless of great tenderness in the passages; she had no vomiting or sickness of stomach, nor could I learn that she had any pain or tenderness whatever of the abdomen. Her bowels, however, notwithstanding the free and repeated use of purgative medicines and injections, continued obstinately costive from the time of delivery.

Wednesday, August 2nd. The attention of the people about her was this day again directed to the portion of membrane (as they conceived it) which had made its appearance the day after delivery, and as they became very uneasy at its not having come away, one of them determined on making some efforts for its removal. The gentlest and most cautious means were at first employed for this purpose, but not finding that they were likely to be attended with success, she incautiously pulled with increasing force, until at length the excessive sufferings of the patient forced her to desist. From this moment a train of the most formidable symptoms set in; the abdomen swelled

* Several years have elapsed since she had her first child, of which I understand she was delivered by the crotchet, after having been three days in severe labour.

up, and became excessively painful, she had incessant vomiting with occasional hiccup, and complained much of a dragging, lacerating kind of pain in both iliac regions. In this state she continued, with but little variation of symptoms, until the Friday following, when I saw her for the first time. It would be difficult to conceive a more melancholy or distressing picture of human misery than she at this time presented: her belly was much swoln, and excessively painful; her stomach rejected even the mildest articles of diet; the bowels were still obstinately confined; she had a small, intermitting, and tremulous pulse, and her countenance was pallid and ghastly: in short, she had every appearance as if a few hours at furthest would put a period to her sufferings. On raising the bed-clothes for the purpose of inquiring into the precise state of matters, I found, in place of the alleged portion of membrane, near a yard and a half of her bowels coiled up under her, black and to all appearance putrid, while the cylinder of the intestine was in many parts so incomplete, that the finger could be passed freely up and down through the rents.

In this very melancholy state of affairs, it is hardly necessary to say that my prognosis of this poor woman's case was of the most alarming nature. To have attempted any thing in the way of operation, under the present circumstances, would, I conceived, be not only impracticable, (owing to the exquisitely tender state of the passages,) but absolutely injurious, by destroying the only chance which I conceived she had of prolonged existence, that of having an artificial anus established in the Vagina.* In fact, it appeared to me, that except in the way of palliating distressing symptoms, little or nothing could be done for her; and in this view of her case I was confirmed by the superior judgment of Dr. Labatt, at that time master of the Lying-in-Hospital. The common saline mixture, with small doses of tincture of opium, was accordingly ordered, with the view of relieving the extremely irritable state of her stomach, and she was directed to take some *cold* chicken broth for her ordinary drink.* A pill, consisting of three grains of calomel and half a grain of opium, was directed to be taken every four hours; the abdomen was ordered to be well stuped, and she was allowed a little wine occasionally. On the following day I found the abdomen still greatly swelled, but thought it bore pressure with somewhat greater freedom; the vomiting and hiccup continued incessant; bowels obstinately confined; the extremities were cold; the face collapsed, and covered with a cold sweat. The protruded portion of intestine had a soft, doughy feel, was more shrivelled, and instead of being black and livid, as when I first saw it, was of a dirty ash-colour. The remedies already mentioned were directed to be continued, and in addition she was allowed, at her own earnest desire, a table-spoonful of barm occasionally.

August 7th. As I was in daily, I might say hourly expectation of hearing of this poor woman's dissolution, it afforded me no small gratification and surprise to find, on visiting her this day, that the mortified portion of intestine had come away in the course of the preceding night, and that she had since been nearly altogether free from alarming and distressing symptoms.†

* Gardien, the latest and most distinguished of the systematic French writers on midwifery, makes the following remarks on this melancholy and embarrassing combination of circumstances:—

"Si cet accident arrive plus tard, la femme est perdu sans ressource, si on ne peut plus porter la main dans la matrice pour réduire les intestins, dans le cas où les accidens qui seroient survenus dépendroient réellement de quelque portion d'intestins qui auroit pénétré dans la cavité de ce viscère. Pour pratiquer l'opération de Pigrai, conseillée par M. Baudelocque, si l'abdomen n'est pas encore ouvert, il faudroit reconnoitre, l'existence d'un étranglement d'intestin; or, nous n'avons point de signes pour le reconnoitre, comme l'observe M. Sabatier. Les hoquets, les nausées, les vomissemens qui surviendroient peuvent tenir uniquement à une fièvre puerpérale, ou inflammation du péritoine, à laquelle les diverses circonstances qui accompagnent la rupture de la matrice donnent souvent lieu: presque toujours les symptômes qui surviennent sont ceux d'une péritonite.

"Le seul cas où il seroit rationnel de pratiquer la gastrotomie pour dégager les anses d'intestins etranglées, comme le conseilloit Pigrai, seroit celui où, après avoir porté la main dans la matrice et avoir reconnu le présence des intestins dans ce viscère, on ne pourroit pas réussir à les réduire par cette voie."—*Vide* GARDIEN *Traité complet d'Accouchemens*, tome iii. p. 107.

* I have frequently known *cold* chicken broth remain on the stomach when every other article of diet has been rejected.

† It measures precisely three feet eleven inches, and is at present in my possession: the members of the Medical

The vomiting and hiccup had ceased; her pulse was regular and of good strength; her countenance was much improved; and the abdomen less tender, though still much swelled. About an hour after the sphacelated piece of intestine became detached, she had a copious discharge of fæces by the vagina, being the first alvine evacuation she had since delivery. The pills and cold chicken broth were directed to be continued, and her attendants were instructed to syringe the vagina occasionally with a warm decoction of camomile flowers.

Friday, August 11th. Has been mending daily since last report; the tension and soreness of the abdomen are still further diminished, and the mammæ are now distended with milk. Pulse natural; tongue clean; expresses a desire for food. As the fæces and urine were both passed involuntarily per vaginam, she was directed to wear a T bandage, with a large soft sponge to the external parts, for the purpose of absorbing the discharges. A pint of porter, with a small quantity of wine, were allowed daily; and a mild, nourishing diet, consisting for the most part of eggs, beef tea, and milk, was recommended.

September 4th. Abdomen still swelled and tender, particularly over the pubis and right iliac region; countenance improved; has an abundant secretion of milk, and is gaining strength daily; appetite very good; she is able, however, to take but a small portion of food at a time, and in about an hour after her meals she again feels a return of hunger. The excrementitious matter voided by the vagina is of a light yellowish colour, of fluid consistence, and is altogether free from the ordinary odour of fæces. From the date of this report her amendment, with but little interruption, continued progressive; and in the course of a few weeks, through the indulgence of Dr. Labatt, she was accommodated with a bed for a few nights in the recovery ward of the Lying-in-Hospital, where she was seen by several eminent professional gentlemen, as also by the pupils of the house. She was at that time able to sit and walk about without the slightest pain or uneasiness, and was in every respect as free from ailment as could well be expected, considering the loathsome and distressing infirmities under which she laboured."

Some particulars of this patient's condition subsequent to her convalescence are next detailed. She has since become the mother of two living children, the last of which was born a few months ago. She is at present a robust, healthy woman, and fully adequate to all the ordinary duties of domestic life. The urine, however, still dribbles through the vagina.

The work is creditable to the author.

Association of this city had an opportunity of inspecting it when I first gave notice of this remarkable case. There were present, on that occasion, Dr. Clarke, sen., Dr. Clarke, jun., Dr. Crampton, Dr. Teeling, with several other leading members of the profession.

MUSEUM AT ST. THOMAS'S HOSPITAL.

A Letter to Sir ASTLEY COOPER, Bart., *on certain Proceedings connected with the Establishment of an Anatomical School at Guy's Hospital.* By J. H. GREEN, F.R.S. &c. &c. &c.

THE controversy which has been for so long a period carried on between the Surgeons of the Borough Hospitals, on the subject of the St. Thomas's Museum, has extended to an intolerable length; and notwithstanding the memorials, refutations, rejoinders, and vindications which have been published from time to time by the conflicting parties, the medical public have no just conception of the peculiarities relative to the question at issue. Nor, indeed, is this at all surprising when we look at the obscure manner in which the subject has been discussed. Mystery is ever the order of the day with Mr. J. H. Green; on whatever matter he speaks or writes, no sooner does he open his lips or touch his pen, than it instantly becomes clouded and confused;—whether we behold him in the character of "Ninnyhammer" at St.

Thomas's Hospital, "Hole and Corner" Conspirator at the Freemason's Tavern, or *Elucidator* of the "Unities" at our beloved College in Lincoln's-Inn-Fields, we find his language still the same,—always enveloped in darkness and obscurity: in fact, he might with propriety be denominated the "Surgical Eclipse." The pamphlet before us is a happy illustration of the accuracy of these remarks; but we must defer our strictures on the beauties of his style, and his attack on ourselves, until a future occasion. In our present Number we shall confine our statements and comments to the facts—alleged facts—and insinuations, that have immediate reference to the disputed Museum, and the circumstances which have transpired respecting it. In executing this task we will endeavour to dispel the darkness created by the great "Surgical Eclipse," which conceals the true character of the transaction from public view, and thus give the medical world an opportunity of fairly deciding on the respective conduct of the contending parties.

To render the entire affair perfectly intelligible, it is absolutely necessary that we should commence our narrative as far back as 1803, in which year Mr. Cline, being the sole proprietor of the Museum, disposed of a moiety of it to Sir Astley Cooper for 1,000*l*. Eight years subsequently to this, Mr. Cline resigned in favour of his son, who then became Sir Astley Cooper's partner, and the following are the articles of agreement which existed between them:—

Articles of Agreement between Astley Cooper and Henry Cline, Junior.

"I.—It is agreed, that Astley Cooper, and Henry Cline, junior, shall give the usual courses of Anatomical and Surgical Lectures, at Saint Thomas's Hospital, jointly, and that the money received for such lectures shall be equally divided between them.

II.—All expenses incurred for conducting these Lectures shall be paid by Astley Cooper, and Henry Cline, junior, in equal proportions.

III.—The collection of Anatomical preparations at Saint Thomas's Hospital, together with all drawings, illustrating the anatomy and diseases of parts, and also the apparatus used for the lectures or teaching anatomy, shall become the joint property of Astley Cooper and Henry Cline, junior. Also all preparations, drawings, and apparatus of the same description, the property of Astley Cooper, or Henry Cline, junior, shall become the joint property of Astley Cooper and Henry Cline, junior.

IV.—It being the intention, that all the preparations, drawings, and apparatus, shall form an inseparable collection—It is therefore hereby further agreed, that the survivor shall become possessed of the entire collection, immediately on the death of the other. If Astley Cooper should be the survivor, he hereby binds himself to pay to the executors or administrators of Henry Cline, junior, the sum of one thousand pounds, within twelve months after the decease of Henry Cline, junior. And if Henry Cline, junior, should be the survivor, then he binds himself to pay to the executors or administrators of Astley Cooper, the sum of one thousand pounds, within twelve months after the decease of Astley Cooper. Such payment being considered and agreed to be a full compensation for the entire possession of the whole collection.

V.—The firm of the lectures shall be that of Cooper and Cline.

VI.—Astley Cooper, being the senior teacher, shall have his choice of the subjects of those lectures, which Henry Cline, senior, has given.

VII.—If Astley Cooper, or Henry Cline, junior, should die during a course of lectures, all the money that has been received for that course before such death shall be divided equally between the survivor and representative of the deceased, after the expenses of such course of lectures have been deducted.

IX.—If either of the parties should become incapable of executing his part of the lectures during two courses, and without a reasonable probability of being able to take his share of the labour of lecturing in the succeeding course, then a separation shall take place upon the same terms, as if the one who was so incapacitated had actually died.

X.—Whatever additions may be made to the collection of preparations during the partnership hereby agreed to, or whatever diminution may accidentally happen, shall make no alteration in this agree-

ment, for the survivor shall take the whole collection, be it greater or less, upon the terms before mentioned.

XI.—This agreement does not apply to the course of Lectures on Surgery, given by Astley Cooper at St. Thomas's Hospital, or elsewhere, on Monday and Wednesday evenings in the winter and spring. Excepting that no partner or assistant shall be taken by Astley Cooper to give the said Surgical Lectures, without the written consent of Henry Cline, junior, unless the said partner or assistant be a relative of Astley Cooper.

XII.—To preserve the collection of preparations entire, it is hereby further agreed, that if either or both of the parties to this agreement, should be prevented from teaching anatomy within the walls of St. Thomas's Hospital, then the whole collection shall be removed to some convenient place, where the lectures can be given jointly by Astley Cooper, and Henry Cline, junior.

(Signed) ASTLEY COOPER,
HENRY CLINE, JUN.

Nov. 17th, 1811.

Thus matters rested until about five or six years since, when the lamented death of Mr. H. Cline gave Sir A. Cooper (as may be seen in the above agreement) a right to be possessed of the whole Museum, on the payment of 1000*l.* to Mr. Cline, who was Mr. H. Cline's executor. Previous to Mr. H. Cline's death, Sir Astley added to the Museum his own private collection, consisting of upwards of *eight hundred preparations*; and although the collection had been thus augmented and improved, yet Sir A. C. demanded of Mr. Green no more than 1000*l.* for the immensely improved moiety; Mr. Green, having paid this sum, became Sir A.'s partner, upon the same conditions as Mr. H. Cline had been. Sir A.'s partnership with Mr. Green continued up to the 25th of January 1825, on which day he sent a letter of resignation to the Treasurer of St. Thomas's Hospital; but subsequently hearing that Mr. Bransby Cooper was not to be appointed to the vacant office of lecturer, Sir A. immediately addressed a note to the Treasurer rescinding or recalling his letter of resignation; in reply to which he was given to understand that, before the arrival of his last communication, the appointment had been bestowed on Mr. South. On the receipt of this intelligence Sir Astley Cooper claimed of Mr. Green his share of the preparations in the Museum.

Our readers are now, we believe, in possession of a brief but correct statement of all the UNDISPUTED facts. We now come to those that are DISPUTED, and they are by far the most important. Sir Astley Cooper states, that *on the day* he addressed his letter of resignation to the Treasurer, he likewise forwarded a conditional letter to Mr. Green, stating that he would not resign the lecturer's chair, unless Mr. Green fully agreed that Mr. B. Cooper should succeed him, and that he (Mr. G.) would employ every means in his power to promote Mr. B. Cooper's election. Sir A. C. alleges that IN CONSEQUENCE of Mr. Green's compliance with these conditions he was induced to forward his resignation to the Treasurer. Although Mr. Green does not *deny* having seen this conditional letter from Sir A., yet he evidently labours to produce a belief in the minds of his readers that it never reached him. Again it is advanced, on the part of Sir A. Cooper, that Mr. Green *did not take* the most active steps *to secure* the election of Mr. B. Cooper; and that instead of proposing him to the Hospital Committee as the most eligible candidate, he gave a powerful recommendation in favour of Mr. South. This Mr. Green denies: he says at page 33 of his pamphlet:

"If any part of my conduct requires explanation, it is that of having carried my opposition to Mr. South to a point, which that gentleman can only excuse by giving me credit for acting upon the strictest principles of honour."

More of this anon. The reader will easily perceive that the whole of the facts and allegations on which this con-

troversy has been founded, resolve themselves into the following simple questions:

1. Did Sir A. Cooper address a letter to Mr. Green, stating that he would not resign unless the moiety of the Museum was to become the property of his Nephews?

2. Did Mr. G. assent to this proposal?

3. Was the letter delivered to Mr. Green *before* Sir Astley's resignation was forwarded to the Treasurer?

4. Did Mr. Green promise to make use of all the means he could command to obtain for Mr. B. Cooper his election to the vacated chair?

The answer which we shall now give to the above questions will for ever determine the character of this transaction, and exhibit the great "Surgical Eclipse" in the full glory of his "Hole and Corner" darkness. The letters addressed to the Treasurer and to Mr. Green, by Sir Astley Cooper, on the 25th of January, 1825, (that to Mr. Green containing a *conditional* resignation, and that to the treasurer containing an unconditional one,) were SHOWN on that day by Mr. B. Cooper, to Mr. Morgan and Mr. Key, in the house of the former gentleman; and Mr. B. Cooper on the same day acquainted them, that Mr. Green had acceded to the conditions which the letter to him contained, viz. that Mr. B. Cooper and Mr. Key should be Sir Astley's successors to a moiety of the Museum, and that he would do all in his power to promote Mr. B. Cooper's election to the Anatomical chair; and *in consequence* of Mr. Green's compliance, Mr. B. C. had tendered Sir A.'s letter of resignation to the Treasurer.

After this statement, can any individual in his senses do other than believe that the conditional letter was delivered to Mr. Green? Leaving out of the question the positive testimony of Mr. Morgan and Mr. Key, the PRESUMPTIVE evidence presented to us from a consideration of the facts must be equally conclusive to all rational individuals. Who, for example, can credit, for one moment, the assertion that Sir Astley Cooper *unconditionally* relinquished his legal right of so valuable a commodity as the St. Thomas's Museum? Again, who can credit so absurd a proposition as that Mr. Bransby Cooper held in his hand, the instrument which was to place him in possession of so desirable a property, and which was to be in a great measure the foundation of his future fame, and yet neglect to employ it? Who can, for an instant, believe that he could exhibit the important document to Mr. Key and Mr. Morgan, and yet fail to present it in that quarter where alone it could prove of service? Again, who can believe that he delivered the letter of resignation to the Treasurer, without having *previously* presented the other to Mr. Green and obtained that gentleman's approval of its contents? Such suppositions are altogether incompatible with reason, with experience, and with our every-day knowledge of the operations of self-interest. Who was to be benefited? Mr. B. Cooper—who was to be elevated? Mr. B. Cooper—who possessed the instrument of his fortune and reputation? Mr. B. Cooper; and yet, if we are to believe Mr. Green, he altogether omitted to employ that document by which his fame and fortune were to be secured. But the proof of the conditional letter to Mr. Green having been written—of its having been delivered to that gentleman *before* the letter of resignation was sent to the Treasurer, is so confirmed, so established, so indisputable, from the parole testimony of Sir Astley Cooper, Mr. B. Cooper, Mr. Morgan, and Mr. Key, that if evidence similarly conclusive could be adduced in cases of a criminal nature against the "Hole and Corner" Surgeons of this metropolis, it would be more than suffi-

cient to hang them all, if they amounted to a thousand in number.

Mr. Green, then, having assented to the terms of Sir Astley Cooper's letter, it necessarily follows that he became bound in honour to do every thing in his power to accomplish their fulfilment, and no inconsiderable part of the conditions was the proposition, that he should endeavour to promote Mr. B. Cooper's election to the Anatomical Chair; the mode adopted by Mr. Green for effecting this, and his "opposition" to Mr. South, we will exhibit in our succeeding number; on which occasion we will likewise expose the contemptible and paltry artifice by which he has attempted to make it appear, that Sir Astley Cooper was in possession, for eighteen months, of the thousand pounds which he paid as a consideration for the moiety of the Museum.

MR. MACARTNEY
AND THE
BOARD OF TRINITY COLLEGE.

Dublin, Jan. 7, 1826.

An event of a very intolerant nature, considering the liberality of the age, has recently occurred in Ireland, but perhaps the name of that country may help to reconcile this apparent contradiction. We allude to the impeachment of Mr. Macartney, before the board of Trinity College, a gentleman whose talents and virtues are as brilliant and exemplary as the crimes imputed to him were odious and unfounded. The offences selected for the prosecution were obscenity and infidelity, or in other words, that he had demonstrated certain subjects in an indelicate manner, and inculcated what has been called materialism in his Lectures. A parson of the name of Sir Frederick Bloss Lynch, and a Mr. Sillery, were the respectable personages who volunteered to sustain these groundless charges. The entire proceeding, it is said, originated in the dying declaration of a young relative of the reverend knight or baronet, for we are not quite sure as to the *quo nomine gaudet* of this charitable divine. During the illness, however, of the "sad boy" of the farce, he was of course offered "spiritual comfort," which he very valiantly declined as a matter not at all necessary to his future happiness, and on being interrogated as to the source of his moral obduracy, he referred his indignant querists to Mr. Macartney's Lectures. A watch was accordingly set, and one of the parties concerned happened to come to the theatre, when Mr. Macartney was instructing his pupils on the introduction of the female catheter, and making some observations on the muscular powers of the bladder, which he illustrated, as he sometimes does, by an anecdote of one of the "frail sex," who used to urinate over a lamp iron in St. Giles's. The alarmed spy was most becomingly horrified at this unseemly exhibition, and hurried out of the theatre, like another Lot, lest the fire of heaven should descend, and consume the anatomical Gomorrah. All doubts of the suspected Lecturer's guilt were now removed. The exposure of a female subject on a dissecting table! The story of the St. Giles's phenomenon! and the confession of the moribund infidel! formed an irresistible body of evidence, and Mr. Macartney was forthwith to be deprived of his professorship. At the suggestion of the pious conspirators, the Board of Trinity College, with a facility of compliance that certainly does them little credit, consented to a hearing of the cause before them, and Mr. Macartney was confronted with his accusers, whom he triumphantly refuted, having, as we understand, acted as his own counsel, and in a manner, too, that would have done honour to a professor of the law. In a day or two following, he read a letter at lecture, from the Provost, acquitting him of all the alleged charges; a communication which was received by his class with the most enthusiastic expressions of applause. They have since voted him an address of congratulation on his success, and passed a series of resolutions condemnatory of the conduct of his enemies.

As this infamous affair was transacted in the congenial darkness of the cloister, other particulars may have escaped our knowledge, strict secrecy being at all times a characteristic of religious despotism, whether conducted in the chambers of an Inquisition, or in the classic halls of an University. A sufficiency of facts have, however, transpired to justify the severest censure on the *principle* of this unprovoked aggression. In the few remarks which time permits us to offer on

this subject, we shall endeavour to separate Mr. Macartney's name as much as possible from the consideration of the general question, because we are aware that it is his wish that we should do so, as it is our own, not so much to comment on his personal wrongs, as to vindicate the rights of a whole profession. The consequences, indeed, that might have resulted to him from such an attack, had it been successful, form but a small portion of the evil discoverable in the back ground of this measure, in the contemplation of which, the injuries of the man, and the abstract atrocity of the deed, are merged in the magnitude of the cause by which they could have been produced. It is the state of society which this shameful act indicates, and the precedent which it has established that invests it with a dangerous importance, and warrants its claim to universal reprobation. These are, in our opinion, the circumstances connected with this measure, which must naturally excite the indignant wonder of every observer who extends his views beyond the mere surface of things, for when it is thus openly sought to ruin one man, how many more must have suffered in private? Without further circumlocution, we may look at the present proceeding in Trinity College as the effect of a system, the latent principle of which would seem to be exclusion, both temporal and eternal; and the first and grand objects of its supporters the punishment of recusants, and the encouragement of proselytes to the "good cause," by a partial distribution of patronage. To be a professor in a college, is by no means necessary to bring a man within the influence of this religious combination. It embraces a much wider sphere of operation than university chairs, extending in fact to every grade in the medical profession; the holders of this abominable creed, acknowledging no other title to their support, than abject submission to their doctrines, for by this test alone do they estimate both merit and morality. An allusion to this preposterous association must, ere this, have reminded the reader, of the existence of a certain class of individuals, who, by a very happy sarcastic metonymy, have been denominated "Saints." With the religious tenets of this, or any other sect, we wish to be understood that we have nothing whatever to do. They may believe, for aught it concerns us, that long prayers shorten the road to heaven, and that the more dismal they are here, the merrier they will be hereafter—at least we shall never disturb a plait in the fantastic drapery of their respective creeds. But when it is sought to reduce the spiritual theory, to which we have just alluded, into practice in temporal affairs, it is quite time for every man who values the free exercise of his understanding, and expects that his deserts should not be overlooked in this world, for what he may conjecture about the next, to contribute his mite, if not in crushing, at least in exposing the horrors of a social hydra that seeks to support itself at the expense of the rest of mankind. We know not how this system effects other countries, but in Ireland, to which our observations are confined, its affects have been long and extensively felt, its supporters having in a great measure the disposal of the patronage of that country, their favours are economized according to the letter of their uncharitable creed. Is there an hospital, a county infirmary, or a village dispensary vacant; the question is not with the candidate, have I merit? No—is not such a bishop my friend, such a tract lord, or majority member of Parliament, my thirty-first cousin, am I not a "Saint"? We need not add that these claims are irresistible. We verily believe that there is not a medical situation to be given away for years, and at the disposal of this body, that is not already mortgaged on a promissory-note of reading the Bible "without note or comment." The pill must therefore breathe the odour of sanctity; the scalpel, like the sword of Gideon, flash with the light of the Lord; the prescription be chemically orthodox; and it is but meet, that the "babes of grace" should be ushered into a sinful world, by the holy fingers of an obstetrical saint. You are watched in the church, dogged in the drawing-room, hunted through all the privacies of domestic life, and if you do not tie your cravat behind, dub your pence for tract manufactories, sip tea at the pious orgies of the "love feast," and turn up your eye to the precise point that gives efficacy to prayer, as if heaven were to be moved by ocular distortion, you may "throw your physic to the dogs"—there is no health in it for the nerves of a saint. Then if you talk of the doctrines of Spurzheim, you are an atheist; an infidel, if you admire Hume; and if the name of Voltaire only escapes your lips, you are dubbed a scoffer at all holy things, and by the common consent of this affiliated band of fanatics, you are deprived of the means of living in this world, and prejudged to hell in the next, for want of the necessary portion of soul-saving ignorance. It would be an endless task to enumerate the various ways in which these moral assassinations are daily perpetrated. A hint, a shrug, a

suspicion only once thrown out at a coterie of the "Elect" that you are a disaffected man, is quite sufficient to place under sectarian surveillance. The gentle fire of a lady-saint's eye as completely consumes your reputation now, as would the flames of an *auto-da-fe* have destroyed your material existence in former times. It is a mere chance whether your fame is blasted by an exclamation of pious horror at a game of whist, or sighed away in benevolent commiseration of your mental darkness over the leaves of the Bible. There is no man safe who denies the infallibility in matters of faith of this many-headed monster, from its ubiquitous vengeance. If you write a book on Geology and that every *stratum* does not tally with the account of Moses, or a book of physiology and tract of life, it is instantly inferred that you do not believe in the scriptures, and that you want to prove that man has no soul. Such is the system to which the opinions, whether written or orally delivered, of men of science are subjected. In short, there are but two keys to unlock the earthly Zion of this religious combination—folly or hypocrisy. To partake of its bounty you must either submit to its fantastic decrees, give up all right to the exercise of reason, and forfeit all claims to the dignity of man. We contrast the bigotry of the former, with the liberality of the present times, through self-love, we presume, to enjoy a portion of our own praise. But the spirit of persecution remains still the same, though its garb be changed. The faggot, to be sure, has been extinguished, and the wheel broken; but what was once accomplished by these formidable means, is now as perfectly executed by the tongue of slander. For our own part, we are not casuists enough, to discover any difference between flinging a man on the pile, and depriving him of the means of earning his bread by the scandal of report—the balance is between poverty with a bad name, and death with a release from the miseries of life.

The charitable personages who conspired against the subject of these observations would, of course, shudder at the name of a "Holy Office," and utter execrations on the persecutors of the philosopher of Florence. Yet in what respect does their own conduct differ from the treatment of Gallileo? nay, in what does not the act of the spiritual court of Dublin, in the enlightened era of the nineteenth, exceed that of the Inquisition at Rome in the dark epoch of the sixteenth century? A comparison of the two cases would, we fear, give the balance of odium in favour of the "saints," for one was tried upon charges which he admitted to be true; the other, for offences which he disclaimed. Evidence of his guilt there was none, even of a presumptive kind, while hundreds who attended his lectures could bear positive testimony of his innocence. Never, therefore, we believe, was there a prosecution more unjustifiable as to facts, or more malignant as to intention, than that instituted against Mr. Macartney; unjustifiable, because the proofs were only to be found in the morbid imaginations of his accusers; and malignant, when we consider the wickedness of an attempt to deprive him of those pecuniary advantages which an honourable exertion of superior talent had secured, and then to throw him on the world branded with the double infamy of being a sensualist and an infidel. Having fortunately failed in their endeavours to prove him a corrupter of youth, may we hope that these pious persecutors will not pursue their vengeance further, and dispose of him in the Athenian fashion, *à la Socrates*.

ERINENSIS.

ROYAL COLLEGE OF SURGEONS IN LONDON.

THIS sink of infamy and corruption—this receptacle of all that is avaricious, base, worthless, and detestable in the surgical profession, like some other Augean stables, is near the hour of its purification. Some of its spirited, but insulted and scandalized Members, determined no longer quietly to submit to the endurance of that degradation and reproach which the College is fast bringing upon the whole body of the profession, have at length adopted our suggestion, and waited on Mr. LAWRENCE, to know if that gentleman would consent to take the Chair at a General Meeting of the Members. Mr. LAWRENCE, with that liberal spirit for which he is so much distinguished, replied, that should a Meeting be convened he would most certainly attend; and if the gentlemen present thought fit to select him as their Chairman, he should cheerfully comply with their request.

In consequence of the powerful aid thus obtained, arrangements have been made for carrying into effect the presentation of a Petition to the Legislature. The Resolutions on which the Petition is to be founded are to be discussed and agreed on at a General Meeting of the College Members, which is appointed for SATURDAY the 11th of FEBRUARY, *three days* previous to the delivery of the HUNTERIAN ORATION.

HOSPITAL REPORTS.

ST. THOMAS'S HOSPITAL.

Case of Traumatic Trismus successfully treated by the exhibition of large doses of the carbonate of iron.

H. Frazer, a robust, healthy-looking man, of sanguine temperament, and about 40 years of age, came into the Hospital on Dec. 10th, under the care of Mr. Tyrrell, with severe injury to the great toe of the left foot. The accident occurred under the following circumstances:—His customary avocation is that of porter in the London Docks, in pursuance of which he was employed in carrying a heavy weight across some planks, when his foot slipped, and the weight falling upon his toe effected the mischief. He stated that the great toe was dislocated from its articulation with the metatarsal bone, but that a by-stander immediately succeeded in reducing it. The accident occurred about an hour previous to his admission into the Hospital, and on examining the part affected there was found to be considerable ecchymosis and swelling around the joint, with two small wounds. The dresser closed the wounds by means of adhesive plaster, leeches were afterwards applied to the foot, and cold lotion.

On the second day after admission, there was so much febrile excitement set up in the system, that it was thought proper to abstract blood from the arm; this, with other antiphlogistic measures which were pursued for a few days, had the effect of allaying the febrile symptoms, but still there was much irritation remaining behind; the pulse was very quick and the patient had restless nights. The wounds on the joint of the great toe took on the suppurative process.

On Saturday afternoon, (Dec. 24th,) the patient complained to the Dresser of stiffness at the back of the neck and inability to open the mouth. On questioning him narrowly, however, we found that he had felt slight stiffness of the neck since Thursday morning, which he attributed to the circumstance of being exposed to the current of air from a window which was incautiously opened near to his bed. Mr. Tyrrell not being at the Hospital, a message was sent to him, and he desired that the patient should take two grains of opium every two hours; but in the mean time Dr. Elliotson saw the patient, and remarked, (with much justice,) that it was of no use giving that which had been so repeatedly found totally ineffective, and he therefore proposed to give a trial to the carbonate of iron, arguing, that from its beneficial effects in many affections of the nervous system, as tic douloureux, chorea, &c. it might be equally productive of benefit in trismus or tetanus. The state of the patient at this period was as follows:—The jaws would only admit of so much separation as barely to allow the tongue to be protruded, and there was much difficulty in deglutition. The pulse was quick, and there was slight expression of anxiety in the countenance; the skin moist, and bowels constipated.—With respect to the state of the wounds, their granulations did not present an unhealthy appearance, but the matter discharged was not of the consistence of laudable pus; and, in addition to this, it had a brownish tinge. The patient complained of much pain in the foot. Dr. Elliotson directed *Carbonate of Iron, half an ounce to be mixed in treacle and taken every two hours.* Four table spoonfuls of the Oil of Turpentine to be taken immediately, and repeated if required.

25th. The symptoms are much the same; a dose of Turpentine was given immediately after it was prescribed—yesterday, it only produced one slight evacuation, and was therefore repeated in the evening. This second dose produced five or six copious evacuations, and occasioned tenesmus, and prolapsus ani with much consequent distress to the patient. He has only taken one dose of the Carbonate of Iron, because it was made too thick for him to swallow; on which account the apothecary prescri-

bed 5 grains of musk to be taken every three hours, with which he commenced last night and has taken four doses thereof. Dr. Elliotson directed the electuary to be made thin with water, and thus the patient was enabled to take it.* The discharge from the wound is rather sanious, and there is considerable redness on the dorsum of the foot.

26. The pulse is upwards of 130, the countenance is anxious, the jaws will not admit of further separation, and the abdominal muscles feel somewhat rigid, more especially those on the fore part of the abdomen. Deglutition is accomplished with much difficulty. The bowels have been evacuated twice since the report of yesterday. He has taken the Carbonate of Iron without intermission every two hours. Let him continue it, and also take 8 ounces of wine daily.

27th. Much the same as yesterday. Pulse continues very quick and small; he has had no evacuation from the bowels since yesterday morning. Dr. Elliotson directed a common purgative enema to be administered, and that he should continue to take the carbonate of iron. A small quantity of matter was evacuated to-day from the dorsum of the foot.

28th. Pulse of the same character as yesterday, equal difficulty of deglutition; the jaws as much closed, and the abdominal muscles are rigid. Two common enemata were given yesterday, but they only produced liquid evacuations. A colocynth enema was directed. A further portion of matter was let out from the foot this morning; poultices are applied to it.

29th. Much the same. Continue the carbonate of iron.

30. Pulse 120; skin moist, and bowels slightly open, with scybalous lumps in the evacuations; he can swallow and also open his mouth better, he complains much of want of rest, and lays constantly in a half-dosing state; a dose of castor oil was given to him this morning, which has not yet acted upon the bowels. There is considerable inflammation on the dorsum of the foot, and the poultices are continued. Dr. Elliotson directed the patient to drink freely of strong beef tea.

31. Slept well, pulse 108, and increased in tone, his bowels have been much acted upon by the castor oil, but he has continued to take the carbonate of iron regularly every two hours. There is a thin discharge from the last opening made in the foot, and there is less inflammation. The patient can open his mouth so much wider, that he requested to be allowed a mutton chop, and this request was complied with. The beef tea in large quantities, and the wine form his principal support.

1826. January 1. It is gratifying to observe the progressive improvement in the symptoms of this case, the mouth can now be opened to a considerable width, but there is no lateral or grinding motion. The pulse is 104, and firm; the countenance improved; the bowels are very much relaxed, and he has taken one dose of chalk mixture, with a view of checking the diarrhœa. Dr. Elliotson directed the carbonate of iron to be taken in beef tea instead of treacle.

2. Complains of much pain in the foot which prevented him from sleeping during the night. The bowels continue very much relaxed, and the stools are chiefly passed in lumps; when the liquid motions become dry, they have precisely the appearance of the carbonate of iron; he complains very much of an accumulation of fæces about the lower end of the rectum. There is a much greater extent of motion permitted in the lower jaw, and he was able to eat his mutton chop.

3. Bowels less relaxed, he now swallows well, and the mouth is open to a much greater extent. The wounds of the foot are discharging healthy pus. Ordered to take the carbonate of iron every six hours.

4. Much the same; complains of cramp extending from the great toe up the leg and thigh.

5. Has taken no medicine since yesterday; pulse natural and countenance good; the bowels are constipated, and he has had a dose of castor oil, and also a colocynth enema. Dr. Elliotson directed the carbonate of iron to be taken three times a day, and the wine to be omitted, with two pints of porter daily in lieu thereof.

7. The report of to-day is, that as far as regards the tetanic symptoms, the patient is quite well; he can now masticate his food and swallow without difficulty, and only remains in the Hospital on account of his foot, which is also much improved.

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*It never occurred to the senior or junior Whitfield, that it was possible to make the electuary thin in order that the patient might swallow it.—Oh! No, this was infinitely beyond their sagacity.—Cunning rogues!

ERRATUM.

At page 525, 1st column, 20 lines from the top, for "ounces," read *minims*.